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Urban Housing Qualities at Neighborhoods of Palestinian Cities

جودة السكن في الأحياء السكنية في المدن الفلسطينية

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Supervisor : Dr. Yazid Refai

Birzeit ,Palestine

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Faculty of Engineering

Urban Planning and Landscape Architecture Master Program

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The findings, interpretations, and conclusions expressed in this study do not necessarily express the view of Birzeit University, the view of individual members of the M.Sc. Committee or the views of their respective employers.

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Abstract

The research examines the deficiencies of housing qualities in the urban context of Palestine. It explores housing qualities at a neighborhood level in term of spatial housing qualities and social services. The research will investigate housing qualities in two concrete cases: Khallet Aladas in Ramallah and Almakhfia in Nablus, two cases are chosen to enhance the outcomes of the research. In order to determine the possible spatial and social deficiencies at urban Palestinian neighborhoods, a qualitative method, which included primary and secondary data, was utilized. The primary data has collected form observations and document reviews including urban characteristics of housing, while secondary data has statistical data from governmental institutions. It will study housing qualities and deficiencies in urban context of Palestine and comparing them to international housing qualities and theories. The research finds that Khallet Aladas and worse Almakhfia have high housing deficiencies in term of spatial qualities and provided social services. As a result of the comparison analysis, the aggregation of housing quality scores in Khallet Aladas gives a deficit about 95.6% of the total housing which are below the minimum required score. Besides, the aggregation of housing quality scores in Almakhfia reveals that all housing units have a quality score below the minimum required score. The interviews help to analyze the results and understand the local context more profoundly. They found that the complex situation of Palestine have generated many implications and challenges in housing qualities. The conclusion focused on the importance of applying Palestinian planning regulations in a neighborhood level besides city

level. This research has almost covered some points to raise housing qualities in terms of spatial housing qualities and social services at a neighborhood level.

Keywords: Palestinian neighborhoods, Housing, qualities, deficiencies, spatial housing quality , social services.

الملخص

يركز البحث على دراسة الخلل و العيوب الموجودة في جودة المساكن في البيئة الحضرية في فلسطين، و المساهمة في معرفة أوجه القصور في المساكن على المستويين الفراغي و الخدمات الاجتماعية.

قد تم اختيار حالتين دراسيتين من المدن الفلسطينية: خلة العدس في رام الله، و المخفية في نابلس،و قد تم اختيار حالتين لا حالة دراسية واحدة من أجل تعزيز نتائج البحث. قد استخدمت الدراسة طريقة البحث النوعي ، الذي يتضمن استخدام البيانات الأولية و الثانوية، حيث تم جمع البيانات الأولية من خلال الملاحظات التي تعقد أثناء زيارة الموقع و مراجعة بعض التقارير المتعلقة بخصائص المساكن، بينما تم الحصول على البيانات الثانوية من خلال البيانات الإحصائية المعدة من المؤسسات الحكومية.

سعت الدراسة إلى الكشف عن جودة المساكن الموجودة و مظاهر القصور فيها في البيئة الحضرية الفلسطينية من خلال مقارنة الوضع المحلي مع جودة المساكن العالمية و النظريات المتعلقة فيها. قد أشارت نتائج الدراسة إلى أن كلا من خلة العدس و المخفية تعاني من عيوب عدة في جودة المساكن سواء على المستوى الفراغي أو على مستوى الخدمات الاجتماعية المتوفرة فيها، و هذا قد حددت الدراسة أن حوالي 95.6% من المساكن الموجودة في خلة العدس أقل من الحد الأدنى لجودة المساكن المقبول عالميا، بينما جميع المساكن الموجودة في المخفية أقل من الحد الأدنى لمعايير جودة المساكن.

و قد ساعد المقابلات مع الأشخاص المهتمين بموضوع المساكن في تفسير نتائج البحث و فهم السياق المحلي بشكل أعمق، حيث أكدت الدراسة أن الوضع الحالي لفلسطين قد أدى إلى وجود العديد من التحديات و الآثار السلبية على نوعية المساكن المتوفرة. و قد ركزت نتائج البحث على أهمية تطبيق أنظمة التخطيط الفلسطينية على مستوى الأحياء السكنية إلى جانب مستوى المدينة. بالإضافة إلى ذلك، ألقت الدراسة الضوء على بعض النقاط المهمة لتحسين جودة المساكن في الأحياء السكنية الحضرية على المستويين الفراغي والخدمات الاجتماعية.

الكلمات المفتاحية: الأحياء الفلسطينية،المساكن، الجودة، أوجه القصور، جودة المساكن الفراغية، الخدمات الاجتماعية.

1.1. Introduction

In recent times, a growing concern about housing qualities has been taking place around the world. Good housing quality is not only required for a better living, but also for human development in order to ensure a stable, better and healthier life. Existing situations of different regions have shown different levels of housing qualities depending on their stages of urbanization and their own characteristics. Therefore, many cities in the Third World are witnessing a rapid urbanization process; they expanded to cover doubled areas and population rates outstripping the existing capacity of required housing and services. However, urbanization has been accompanied with various implications - particularly in the Third World- including housing and its urban services *"… in the urban areas of the Third World. The 'overurbanization' that results is associated with widespread unemployment and underemployment in addition to all of the problems of lack of housing and access to urban services, traffic congestion, and environmental pollution"* (Hope, 1986, P.45).

Palestine, which is considered to be a Third World country, has suffered from quantitative (over-crowdedness, the number of housing units) and qualitative (densities, accessibility to services, breen structures) housing problems at different levels (Ismail, 1996). The deterioration of housing characteristics in Palestine are highly generated and influenced by a set of factors ranging between political, administrative, economic, and social aspects in addition to the existing planning regulations and structure. This research assumes that all these factors are

forces that cause widening gaps and deficiencies of housing qualities, including spatial housing qualities and social services at a neighborhood level of urban Palestinian context.

This research will explore two cases: Khallet Aladas in Ramallah, and Almakhfia in Nablus as exploratory study cases of two different contexts, different geographical locations in West Bank, and common social status. Moreover, the research will adopt an objective approach through comparing local housing qualities in Palestine with international housing qualities and theories. At the end, it will come up with results and recommendations that can also compound a strong base with new dimensions for advanced studies towards better housing qualities in Palestine, and it can serve as a feedback for decision makers to enrich existing development planning and policies in order to achieve better residential built environment in Palestinian cities.

1.2. Research Problem

The crisis of housing qualities in Palestine is result of a set of contributions. It is a multi-sectors problem varied between demographic, economic, political, and legal aspects. Palestine has faced growing population at alarming rates because of natural increases and local immigrations. On the one hand, in 2012, the total population of Palestine is about 4.29 million, and it is estimated to be 6.06 million in 2025(PCBS, 2012). On the other hand, main Palestinian cities have attracted people who are looking for job opportunities and better living conditions especially after high Post Oslo agreement (1993). These implications have imposed additional pressure on cities' ability to provide good quality housing and

social services.

Moreover, the intense population increase had led to a boom of constructions. Most housing stocks were performed by private investors concentrating on the upper class. The situation pushed the lower class to add and extend their housing buildings without building or technical references. These arbitrary housing constructions have resulted in deterioration in physical conditions of urban environment (Touqan, 1996; Shaheen, 2013).

The political situation is also directly linked to the housing crises in Palestine. External political obstacles are compounded by Israel's practices and legislative changes introduced to the existing planning structure and laws. Israel's restrictions on expansion of Palestinian cities put negative impacts on the development of appropriate housing strategy and management of land and natural resources. Palestine has never been in control to produce a body of planning and zoning law. British, Jordanian, and Israeli zoning and planning were applied to control Palestinian land (Farmand, 1996), which focused on the national level ignoring the local level. Housing constructions after 1967 were carried out by personal sectors without a regulatory reference of approved plans or zoning needs. At the same time, Israel's authority had changed the legislative structure of the Jordanian laws. It had eliminated the local and district committees, concentrating all powers in the hand of the Higher Planning Council. As a result of that, the lack of updated planning regulations and no clear distribution of responsibilities and structures among institutions and ministries have caused duplicating time efforts, and resources required. With respect to that, it becomes evident that there is a

need to give more insight on spatial housing qualities and social services in Palestine, which in return can be a reference for housing improvements in Palestinian cities.

1.3. Research objectives

This study aims to inquire the deficiencies and the gaps of housing qualities at neighborhood level in Palestinian cities focusing on spatial housing qualities and its social services. Understanding the housing deficiencies can also broaden new visions for advanced studies towards better housing qualities in Palestine, and it can be a crucial study in guiding decision makers to achieve future built environment of the whole growing neighborhoods in urban context.

The specific objectives are:

- To determine objective criteria that is relevant to spatial housing qualities in order to define the deficiencies at a neighborhood level.
- To identify accessible social services provisions for existing and future needs and comparing those to international ones.
- To identify the deficiencies and surpluses in the areas of social services.
- To achieve an appropriate balance between present and future social services providing a base for the future decisions of local development planners.
- To find learning lessons related to spatial housing qualities and social services that can contribute to improve overall housing quality.

1.4. The importance of the study

Housing qualities have been discussed in many urban and social studies. These studies have been an attempt to overcome housing deficiencies through different

approaches. Connecting between spatial housing qualities and social services at a neighborhood level has not yet taken place in the West bank. However, there are some studies that discussed housing qualities and social services separately and on a city or national level. This study presents an essential trend to deal with two important dimensions of housing qualities: spatial housing qualities and social services. This study can help go further through housing qualities at different levels in advanced studies. Besides, this study seeks to elaborate deficiencies of housing which could be generalized on other similar cases qualities in the context of Palestinian urban areas, and to contribute to a fundamental knowledge for decision makers to develop planning regulations, policies, and guidelines. Moreover, the study is conducted in an area which has political conflicts and instabilities which enlighten the importance of serious solutions to improve urban housing quality.

Here are some previous studies, in order to illustrate the differences between these studies and the conducted one:

- A master thesis “Nablus: A Study in Population Structure and Housing Characteristics”, conducted by Maher Abu Saleh (1998):

This study has investigated the relation between population structure and housing characteristics. The study also focused on population structure in term of sex ratio, education status, literacy, social status, economic activity, the average size of family, age, profession and the average monthly income. In addition to that, the housing characteristics were determined in term of the ownership status, construction materials, the average space of housing unit, the occupancy ratio, the

services (sewage, water, gas), kitchens, bathrooms, and electronic equipment. Maher's study has tackled housing qualities only at a unit level.

• **A master thesis "Housing Unit and Households Projection Methods in the Palestinian Territory up to 2010", conducted by Mahmoud Abd-Alrahman (2003):**

This study has inquired the future estimates of households and housing units in Palestine, in order to create appropriate strategies for short-term and long-term services. In this study, a future estimates concerning the number of households and housing units are identified based on several methods of projection: such as head of households rate method and average of household size method. Mahmoud's study focused on quantitative deficiencies not considering qualitative approach.

• **A master thesis "The Impact of Planning Regulations on the Built Environment in Palestine", conducted by Amro Basem AhmadTuffaha (2009):**

This study has inquired impact of existing planning regulations in Palestine, and it has highlighted \ the pros and cons of them. It focused on investigating spatial qualities of residential neighborhoods through historical approach not comparative approach.

• **A master thesis "Planning for Social Services in Palestinian Cities: The Case of Almakhfia", conducted by Mohammad Ghassan (2007):**

It focuses on planning for social services in Palestinian cities, especially in Nablus. The writer has focused on Almakhfia neighborhood in Nablus considering analytical and descriptive approach, which is totally different from the comparative approach adopted in "The Urban Housing Qualities at Neighborhoods of Palestinian Cities" study.

1.5. Research questions

The main question of the study:

- How to verify if housing qualities in the Palestinian urban areas are in compliance with international housing qualities and theories?

Secondary question:

- What are the gaps of spatial housing qualities concerning a neighborhood level?
- What are the social services that have inefficient areas and locations at a neighborhood level?

Other techniques have been used in the study such as maps and photos.

1.6. The study limitations

The study aims to develop a comprehensive understanding about the research main problem. Accordingly, it is important to note that the research will be limited because of the following:

- Because of time limits, the focus of the study will be on:

- Urban areas in Palestinian context.

- Elaborating the existing deficiencies of housing qualities at a neighborhood level.

- Two small neighborhoods from two different contexts.

- Achieving the main goal of the study through an objective approach at two main dimensions: spatial housing qualities and social services.

• The adopted theoretical background and data collection:

- Limited theoretical backgrounds because of insufficient access to articles from the internet.

- Weak cooperation from the key persons of ministries and municipalities.

- Inaccessible statistical data from PBCS and local municipalities, which resulted in duplicating efforts to collect data from field survey.

This part provides a general overview about housing in Palestine. It includes housing needs, population density, housing conditions, and the associations which are responsible about housing development. It considers the areas ruled by Palestinian authority: West Bank and Gaza.

Planning in Palestine

After the 1967 war and the Israeli occupation of the 1948 land, Palestine has been divided into two separate areas: West Bank which is about 5,800 km², and Gaza strip 360 km² (The National Housing Sector Strategy Team, 2010). West Bank was under the control of Jordanian kingdom which had transferred its planning system to West Bank, and Gaza strip has been developed under the Egyptian planning system. The two areas are completely geographically separate. Moreover, Oslo Record (1993) –which is in force till day- has resulted in a total fragmentation in the West Bank. The West Bank area has been divided and classified into (Shalev & Cohen-Lifshitz, 2008):

- Area (A) presents 18% of the west bank, and it is under a complete control of the Palestinian authority.
- Area (B) presents 22% of the west bank, and it is under a combination of the civic Palestinian control and security of Isreali authority.
- Area (C) presents 60% of the west bank, and it is under a complete control of the Isaeli authority.

The planning in West Bank is following: Temporary Law 79 of 1966 and Palestinian local authorities' law of 1997 (Faramand, 1996). The following sections highlight these laws.

The Jordanian law Enacted 1966

It remains in force till now, it created a hierarchical planning plans resulted in four main types of plans at different levels(local, regional or district plan, and national plan) (Faramand, 1996):

- Outline plans: which are prepared by the Higher Planning Council at a wide level, and aim to regulate different land use, roads, infrastructure, industry, public buildings, etc.

- Detailed plans: prepared by the District Planning Committee, aim to provide permitted uses and buildings construction on individual plots. The buildings permits will be given according to the outline plans. They are working at two levels: city level, and village level.

- Subdivision plans: are under the authority of the Local Committee aims to regulate the parcellations of plots (Shalev & Cohen-Lifshitz, 2008).

City, village, and building planning, temporary law 79 of 1966

After reviewing this law, it is found that it provides a general overview for the hierarchical structure of the planning institutions (the minister of the interior, the higher planning council, the central planning department, the district commissions, the local commissions) (ديوان الفتوى و التشريع, 2009)

- It includes general laws and regulations that guide and control the work of municipalities and local communities.
- It solves all problematic issues that could face the local municipalities and

councils.

- It explains -in details- the responsibilities of the central towns and cities planning department, the district commissions, and the local commissions, their relations with each other, and the mechanisms of achieving urban planning developments and plans.
- The detailed laws and regulations are enacted by local commissions.
- This law has considered the aesthetic and environmental aspects of the city, but in general way. It has not determined the form of housing leaving it to the local council. However, it determines the kind and color of cladding materials.
- It has discussed laws at the national level.
- This law has included the policies and regulations of city planning but it has not specified any restriction of urban development.
- It has included land uses in general, without giving specific details or regulations.

<u>Palestinian Local Authorities Law of 1997</u>

It is a complement for previous law. It has discussed-in details- local bodies in term of the mechanisms of election, action, powers, and collection of its revenues (وزارة الحكم المحلي، 2009):

1. It has explained the formulation of laws, their details, and specializations.
2. It has not discussed any detail about planning regulations or building constructions.
3. It has transmitted the authorization power of local bodies to Ministry of Local Government instead of Ministry of The Interior.

Planning by laws and regulations at a local level

It provides more detailed planning regulations to control urban development. It also includes planning regulations about residential, agricultural residential, commercial, and parking developments. It explains in details planning regulations including setbacks, heights, site coverage etc. It is important to note that residential areas are classified into five categories: High-rise residential buildings (A), residential areas (A), (B), (C), and (D). Each area has its own permitted regulations in term of heights, coverage, setbacks (بلدية رام الله, 2013;بلدية نابلس, 2006).

Nablus and Ramallah have similar planning articles in term of housing quality which can be summarized as following:

Article (10) has discussed the cleanliness of the building from outside to maintain buildings themselves and the built environment, and to achieve sustainable and habitable built environment. It also aims to achieve planning process properly. But the absence of the act law for implementation is main reason of neglected environment and buildings, so the act law of periodic maintenance is required.

Article (18) "residential gardens" has discussed the minimum area determined for private gardens which equals to 10% of the total lot area and it must be planted. It aims to achieve kind of environmental balance within residential areas. It takes into consideration the aesthetics, functional, social, and planning determinants. Hence, gardens are necessary for entertainment, purifying air, noise reduction, and they are necessary for leisure and social activities. Moreover, they

give a schematic and homogeneous view of neighborhoods.

Article (18) opposes the articles (22)-(24). Hence, it is noted that the residential gardens are used as parking stops. According to the articles (22)-(24) must be provided to obtain construction permits. Two options can be suggested to ensure private green areas:

- Determining an area within setbacks by licensing committee and providing the design requirements, financial penalties must be paid in case of violations.
- Merging two adjacent land with one side setback equals to zero on one hand, and adding 2.5m for the other. This option enables residential areas to have additional continuous private green spaces and additional built up area. At the same time, it is not allowed to use more than 2m for car access.

Article (21) has discussed regulatory use according to structural city plan and schemes. It has been considered the base of physical characteristics for the built environment. Hence, it determines the use of buildings that is allowed in different areas in addition to land use.

Housing development organizations

Before 1990, there was no governmental organization for housing sector. The responsibilities of municipalities were limited to giving construction permits within the boundaries of municipalities. But they were required the consent of Israel authority. After that, there were three main organizations for housing development as follow:

I. The Palestinian Housing Council: it is established in Jerusalem in 1991. It is supported by European Unions. It aims to achieve housing to explore practical ways that will enable it to resolve the housing problem in the Palestinian Territories (Economic Development & Finance, 2007). The number of housing units built by PHC Over its first 16 years of operation and continuous work summarized as following:

- 1,178 apartments in the Gaza Strip
- 408 house units in the West Bank
- 703 houses in rural areas
- 1,500 apartments in Jerusalem
- 241 houses have been rehabilitated
- 70 houses and compounds have been repaired in the old city of

In addition to:

- directly benefiting: 5,094 Palestinian families (29,034 Palestinians)
- PHC's projects spread over (12) major cities and (170) villages in Palestine.

II. Palestinian Ministry of housing: it consists of five directorates: research, planning, development, urban policy and projects, and administrative managements. It aims to achieve (Ziara, 1997):

- Enable citizen to live in decent house.
- Encourage the scientific research in term housing sector.
- Develop the local housing industry, adjust and improve quality standards.
- Urban development.

- The revival of Arabic and Islamic architecture.

Its achievements and projects can be summarized in:

- Cooperative housing projects, selling public lands for low and moderate income people at nominal prices.
- Establishing the department of scientific research.
- Present financial support for the students of Islamic university to present their researches about housing developments.
- Providing technical standards for multiform buildings depending to adjust quality.
- Its consents for architectural projects carried out by private sectors.

III. Cooperative association in Palestine: There are three stages for the housing development through housing cooperative associations: housing 1967-1978, housing 1978-1986, and housing after 1986(عبيدات، 1992) .

Housing 1967-1978: There was not significant housing development in this period due to the lack of funding, and political situation. Israeli authorities refused to give permits to establish new cooperative associations, which prevented them from working properly. There were mainly three cooperative housing associations which are: Hebron cooperative housing association, Al-Biereh cooperative housing association, and teachers' cooperative housing association (Ibid.).

Housing 1978-1987: During this period, the common committee provided the housing sector with JD 24.5 million. About JD 9.5 million were given to 43

cooperative housing associations, and 1415 housing units were built by them. Only 400 hundreds units were totally done (Ibid.).

Housing after 1987 : severe problems have prevented the cooperative housing from the continuation: the lack of funds to support the infrsatructure of the cooperative housing , along with the israel's policy that objected to register new cooperative hosuing projects. conseqauntly, cooperative housing projects were constructed through indiviual permits and suffered from the lack of required infrastructre(Ibid.).

Urban Fabric and Housing Typology in Palestine

The physical urban fabric in west bank and Gaza strip can be classified into three main areas: Rural areas, refugee camps, and urban areas. Urban areas have two types of developments including city centers and neighborhoods, and some industrial, commercial areas or individual buildings within residential neighborhoods. The rural fabric consists of traditional buildings attached to new ones where lands are available and constructions are permitted. Refugee camps have the most dense and complex urban fabric. Its present situation refers to the political conflicts, wars, and it demographic and economic implications (Hadid, 2002).

City centers are usually composed of historic centers similar in design and activities to most Islamic/middle eastern historic centers. They are highly dense and compact areas which are composed of several entities; each entity represents a neighborhood or a quarter with private houses and their access routes. It also

reflects the relation between public and semi-public spaces. Later on, the historic centers were surrounded by new commercial and public buildings to be a starting point of the new development. Economic development was followed by the emergence of new neighborhoods which are less dense areas than the centers. They mainly include residential uses with some allowable uses such as grocery, shops, restaurants, and offices (Abdelhamid & Amad, 2005;Touqan, 1996).

The neighborhoods of the Palestinian cities usually have certain types of residential buildings (Hadid, 2002), as follow:

Separate house (single house, villas)

Apartments: low rise buildings and block apartments in West Bank and Gaza, in addition to towers in Gaza.

Attached housing or row housing.

Housing problems in Palestine

Housing problem is one of the main issues that have attracted the researchers and planners. According to Ismail (1996):

“*The housing problem is one of the most important social issues facing Palestinian society, in both qualitative and quantitative aspects”.*

The critical situation of Palestine has generated many obstacles to the urban development; where authorities and residents could not respond and plan in a way that could improve the overall quality. These obstacles can be summarized in:

- The outdated Palestinian legislative and administrative structures which are inherited from outer contexts. These laws and regulations cannot meet the modern needs of residents resulting in low housing qualities which are not compatible with international housing qualities.
- Oslo agreement (1993) has started uncontrolled investments and inefficient coordination between housing market and national development plan. According to Touqan(1996): “This situation is aggregated by the poor quality of construction of high rise building before building regulation and control have been upgraded and the executive bodies are able to control their quality”.
- After Oslo (1993), the banks’ loans limited to middle and upper classes and the increase rates of unemployment have reduced the possibility to improve or upgrade existing housing units (Touqan, 1996; Ismail, 1996).
- The conflicts between Israeli and Palestinian authorities to define the borders of the municipalities. Consequently, urban development concentrated within the boundaries of the municipalities, it has negatively influenced the ability of the cities and towns to meet urban growth needs and increased the overloaded services (Touqan, 1996; Ismail, 1996).
- Local building materials suffer from Israeli restrictions such as heavy taxation, Israeli competitions, and Israeli refusal to allow the construction of major factories such as cement factories. Moreover, stone, marble, concrete and other products use local and imported materials to be produced resulting in prices increase. Consequently, the unaffordable construction materials caused distortion in housing sector in term of housing quality and occupancy density (Shadid,

1997).

- Land prices are continuously increasing due to urbanization status. The range of land prices differs from a few hundred dollars per donum in some rural areas to several hundreds of thousands of dollars per donum in urban areas (Ibid.).
- Israel practices have created major obstacles in housing sector. They are represented in housing demolitions in order to empty Palestinian lands from original owners. Israeli authority has demolished about 23,100 residential units between 1967 and 2009; they claimed security reasons or the absence of building permits. It also worth to mention that the refusal of buildings' permits in area "C", land confiscation, construction of separate wall and bypass roads are difficulties that have damaged the infrastructure and caused high pressure within the borders of urban areas (The National Housing Sector Strategy Team, 2010).
- Very little land is in public, and it will be scarcer as population increases (Coon, 1997).

Quantitative problems

It can be classified into two main streams: problems In future needs due to the population projections, and housing needs in term of housing conditions.

- **Housing needs and population density**

The total area of West Bank and Gaza is about 618,700Ha. An area of 582,200Ha is for West Bank on one hand and 36,500Ha is given for Gaza strip on other. The total population of Palestine is about 4.29 millions. Different areas of West Bank and Gaza give different population densities. The total number of housing units in Palestine in term of habitability is presented in table (2-1).

Table (2-1): The total number of housing units in West bank and Gaza in term of inhabitability. (Palestinian, 2011)			
Housing conditions	**West Bank**	**Gaza**	**Total**
Uninhabited houses	245,623	456,314	701,937
Inhabited houses	414,493	214,692	629,185
Total	660,116	671,006	1,331,122

According to the PBS of 2008, the average housing density in term of number of persons per room is about 1.7 persons, including 1.6 and 1.9 in West Bank and Gaza respectively. Approximately 12.7% of Palestinian households live in residential units with a density of +3 persons per room (The National Housing Sector Strategy Team, 2010). It is higher than international standards of density which equals to 2 persons per room (Wilson, 2014).

- **Housing needs and conditions**

The total housing units needed in West Bank and Gaza is estimated by 132,759 housing units in 2010. Table (2-2) summarizes the total number of deficit housing units if they have to be improved or replaced by new housing units.

Table (2-2): Housing needs in Palestinian territories until 2010. (Palestinian, 2011; The National Housing Sector Strategy Team, 2010).

Indicator	Number of units
Total needed residential units in Palestinian territories until 2010	132,759
Deficit in residential units until 2010 in Palestinian territories	57,303
Deficit in residential units until 2010 in West Bank	24,048
Deficit in residential units until 2010 in Gaza	33,255
Residential units needed for replacement and reserve in Palestinian territories	75,456
Residential units needed for replacement and reserve in West Bank	50,437
Residential units needed for replacement and reserve in Gaza	25.019
Total deficit until 2019	293,995
Number of produced residential units with building permits	5,700
Annual deficit in residential units in the next ten years	29,400

Qualitative Housing Problems

Field surveys have been conducted through different Palestinian cities in West Bank. It aims in order to collect some observations about the existing spatial qualities at urban residential neighborhoods. The surveys have shown that different urban areas of those cities are suffering from quality problems at residential neighborhood level. The poor housing quality can be broken into four main aspects: Housing heights, physical conditions, circulation conditions, and open spaces.

Most of urban areas suffer from urban decay problems where a large number of housing are considered unsuitable for human life in term of over-crowdedness,

accessibility to social services, and the environmental conditions (ventilation and lighting). High density in residential neighborhoods is resulted from the high number of floors and apartments in urban areas as illustrated in figure (2-1).



Figure (2-1): High housing densities and over-crowdedness in Betlahem and Jenin respectively. (The researcher, 2013).

Consequently, the number of people living over the same parcel is increased, leading to left negative impacts on the outdoor spaces and the health status of people. The existing spatial housing arrangements have caused the lack of privacy, poor ventilation, and lighting as shown in figure (2-2).

The streets suffer from deterioration, inadequate sidewalks, and the lack of green elements due to neglect and lack of maintenance. Therefore, streets become less

welcoming environment for walking and social activities as shown in figure (2-3)

In addition to that, the spatial congestion posed excessive burdens and overloads on social services. Consequently, major concerns and challenges have been raised to achieve good access for social services that which plays an explicit role in living comfort and sustainable development.



Figure (2-2): The lack of privacy, good ventilation, and lighting because of inappropriate housing arrangements. (The researcher, 2013).



Figure (2-3): Poor street condition in Al-Jabryyat neighborhood. (The researcher, 2013).

This chapter is a general overview for two cases: the first is Khallet Aladas in Ramallah. The second is Almakhfia in Nablus. This chapter provides the justifications considered in the selection of the study cases, a short description of the location, demographic, socio-economic status, physical conditions of housing, and existing facilities at local level for each case.

The Justifications of selecting study cases

The two cases are selected according to specific justifications; they can be summarized as follows:

- The decision of selecting two neighborhoods (Almakhfia in Nablus, Khallet Aladas block in Ramallah) is to achieve an over balance when elaborating the research dilemma. The two neighborhoods are located in two cities of different context and geographical locations. On the one hand, Ramallah is in the middle of West Bank and is considered the center of economic and political developments. The first case (Khallet Aladas) where market forces are the main determinants for the selection of major construction projects – particularly housing buildings. On the other hand, Nablus is the largest city and is located in the north of the West Bank. The second case (Almakhfia) is where administrative forces and Al-Najah University are driving urban development. According to Ismail (1996) : "These areas occupied important locations in the heart of Tulkarem, Ramallah, and Nablus and are thus existing on highly priced urban lands. Earlier, these areas were purely residential in character and meant for high and middle classes. These areas, however, suffer from overcrowding, traffic problems, rapid commercial and

administrative development due to the increase in commercial activities in the center, and the overall expansion of the city."

- The study aims to choose cases which present two different high level of quality based on the common definition among local people. Khallet Aladas is considered a neighborhood of high class community, and Almakhfia as middle class community.
- There are similira cases to Khallet Aladas and Almakhfia like: Aljabryyat in Jenin and Wadi Shaheen in Beit Lahem as shown in chapter two. Field observations noted that there are similar deficiencies in housing qualities among these neighborhoods, so the result of the study can be generalized on these cases.
- The desire to use testing cases which are subject to present planning regulations in the West Bank rather than old ones.
- The focus of the study is in urban areas, so the two neighborhoods are located in main cities of the west bank.
- The borders of the local study areas are a result of integrating two layers: the physical borders determined by local municipalities, and the borders of individual zones set by PCBS. It aims to facilitate preparing community profile for each case.
- The two study cases are inquired to meet the inductive approach in the research. It depends on exploratory cases and observations on housing deficiencies at spatial and service levels. The study cases are selected to be large enough in order to explore the set of deficiencies in housing qualities in Palestinian urban context. They will be extensively analyzed to introduce a large

amount of effective information.

A general overview of Ramallah

Ramallah city is a Palestinian city in the middle of West Bank. Ramallah is surrounded by Surda village from the North, Rafat village from South, Al-Beireh from the East, and Betuniya from the West (Ramallah Municipality, 2012; Khamaisi, 2006).

The old Ramallah occupies about 5,000 donums, and social services are concentrated at nearby locations. After Oslo- accords (1994), between the Government of Israel and the Palestinian Liberation Organization, Ramallah has doubled in term of its area and population. Ramallah began to grow as a result of natural growth and positive immigration including Palestinian returnee creating mosaic communities in Ramallah. This population growth has led to the increase demand of housing and social services. Therefore, the built up area has been expanded at a rate 585 donums per year (1994-2000) (Khamaisi, 2006).

According to Aruri(2012, P.2):”*Ramallah is a city that entered the twentieth century as a village and by its end had become a de facto capital”.*

This rapid growth has also transformed and changed the social, economic, institutional fabric, and the distribution of social services. According to a focus group (30-45 years) organized by Aruri(2013):” *“There were lots of new people arriving into the city, leading to its growth physically. There were also numerous investments. This was accompanied by the arrival of a political elite [Palestinian returnees5], and a growth in awareness; not particularly in positive terms. There*

was an image of a different living style that arrived, politically, economically, living style, construction/built environment, cafés and entertainment, which all led to a change in the track of the resistance. Ramallah was consumption based before Oslo, yet the agreement caused a dramatic shift and increase."

Ramallah's expansion has directed by its location within mountain area. It has followed the main regional road system to be connected with surrounding areas, such as connecting Ramallah with Al-Beireh city by Al-Manara -main city of Ramallah-. However, its growth to South is restricted from north by Israeli land confiscation, allowing it to expand to east toward Al-Beireh, to West toward Beitunya, and to North toward Birzeit town. Both Al-Beireh and Beitunya are already surrounded by Israeli settlements causing a denser built environment (Aruri, 2013; Khamaisi, 2006). It created excessive burdens on the exiting residential neighborhoods, according to (Geith, 2004)"This migration brought us nothing but more pressure on buildings, services, and roads. In Al-Tireh, where I live, you can find up to 200 people living in one 10-story building with 30 apartments. They all have their own way of life and customs, and it is hard to mix with them". It is rarely found a low density area with low-rising buildings of no more than four flours (Khamaisi, 2006)**.**

Moreover, the planning work started in 1997, when most of Ramallah's lands are still unplanned and privately owned. As a result of that, many private investors initiated some economic projects using detailed plans of their private lands without a clear reference to comprehensive outline plans. Besides, there were no guidelines or mechanisms to cope with sudden increase of private investments.

Consequently, planning work and development were not effectively applied; more housing are provided by investors for sale or rent at the expense of the ability of the municipality to provide required social services or receiving a homogenous built environment (Khamaisi, 2006).

Field trips have been conducted through the different residential neighborhoods of Ramallah, including the whole area of Khallet Aladas. There have been different housing problems in the area. However, it is noticed that the residential area to the west of the Khallet Aladas main street is in an overall better condition than the one to the East. Consequently, a set of housing-quality problems are obviously present in the Khallet Aladas.

In light of the previous justifications, Khallet Aaladas is therefore a good study case to help us achieve the main goal of the study. A set of problems can be noticed through:

- The density of the area, and different housing typologies.
- Deterioration of privacy.
- The lack of social services and open spaces.
- Overcrowded street by private cars and insufficient parking.

First case: Khallet Aladas

Khallet Aladas is a residential area in Ramallah city. According to the data collected from the municipality's maps, Khallet Aladas is located in the North West of Ramallah. It is about 1.7 km from Al-Manara Square- the center of

Ramallah city. It occupies a land area of 61.9 Ha and is zoned into three main residential areas: area A 16.1 ha, area B 20.9 ha, and area C 24.9 ha, in addition to public land use, as shown in Figure (3-1).

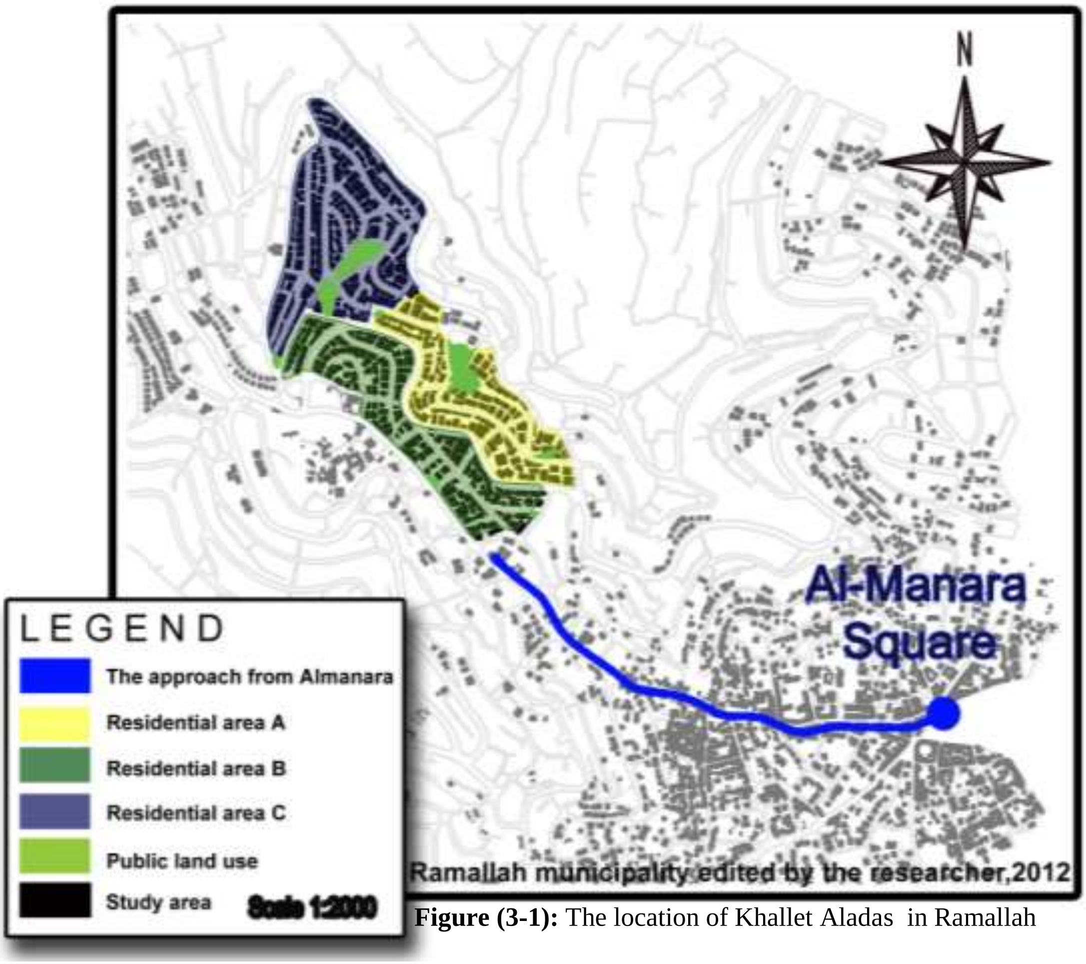


Figure (3-1): The location of Khallet Aladas in Ramallah

Community profile

Khallet Aladas has a population of 2,797 based on Palestinian Bureau statistics (2007). It increased to become 3,282 persons in 2013 with annual population growth of 2.7 (PCBS, 2009). Figure (3-2) illustrates the age groups of Khallet Aladas. On the one hand, about 43.7% of population is under 18 years. On the other hand, 43.7% of the population is over 18 years.

A small percentage is over 65 years or undetermined comparing to other age groups. Khallet Aladas society is considered a youth community, which mirrors the social services required the most.

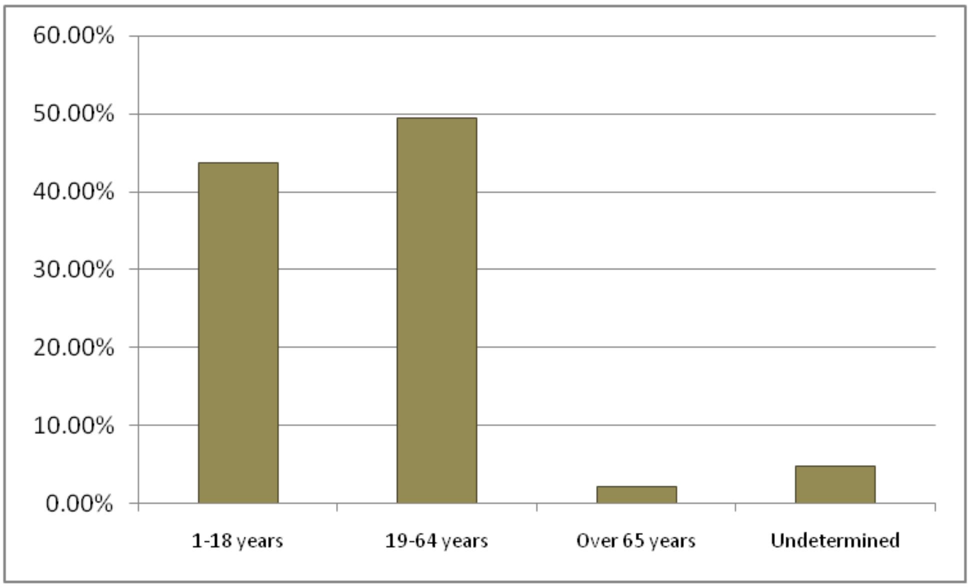


Figure (3-2): The percentage of age population groups in Khallet Aladas.(PCBS,2007)

A small percentage is over 65 years or undetermined comparing to other age groups. Khallet Aladas society is considered a youth community, which mirrors the social services required the most.

Field survey shows that Khallet Aladas includes 1,423 housing units (The researcher, 2012) with an average of 4.3 persons per household (PCBS, 2007). The infill development will house additional residents; the study case will have about 1,884 residents. The total expected population in Khallet Aladas will be 6402 by the end of the year 2025.

<u>The socio- economic status</u>

The PBC (2007) shows that 60.4% of Khallet Aladas residents were currently

married, while 36.33% were never married. The rest tiny proportions were divorced, widowed, separate, or undetermined as shown in Figure (3-3). PBC (2007) shows that 49.4% of the residents were employed as shown in Figure (3-4) and 50.9 % of the total were having a permanent income (employment or retirement).



Figure (3-3): The percentage of social status for Khallet Aladas' population.(PCBS,2007)

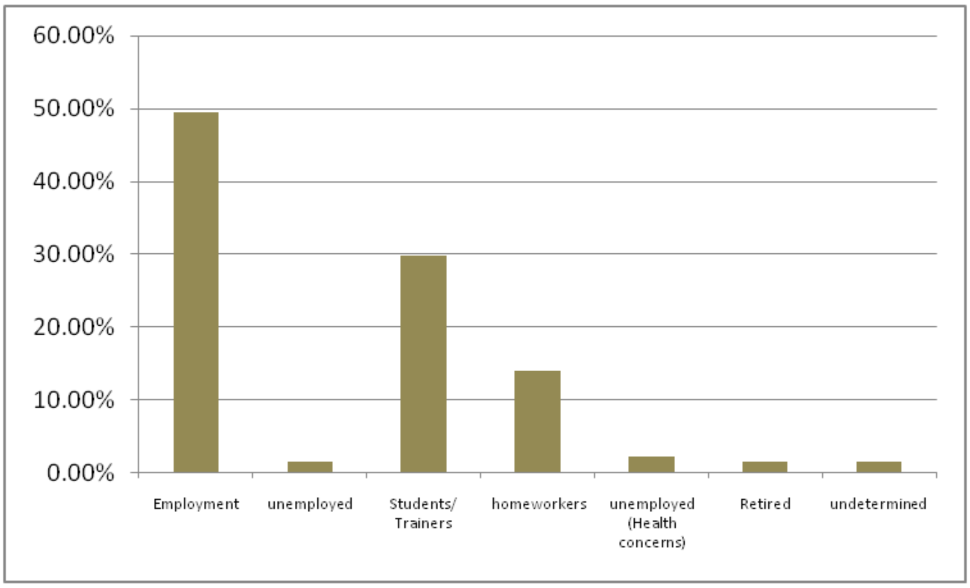


Figure (3-4): The percentage of work labor for Khallet Aladas' population.(PCBS,2007)

Less than the half of the residents has an income, since Khallet Aladas is a youth community. In addition to that, 33.3% of residents -whose age are over 24 years-, are holding a diploma or university certificate. Moreover, about 24% of Ramallah's population is Christian, while the rest are Muslims.

An overview of Khallet Aladas's housing conditions

Khallet Aladas is a newly developed residential area in Ramallah city. Rapid urbanization and high price of lands have mainly characterized the physical characteristics of Khallet Aladas. Site visits indicated that the area has suffered from problems in four main aspects: Housing heights, physical urban configurations, street congestion, and open spaces. Housing heights vary from one floor to eleven floors -including roof floor-



Figure (3-5): Different heights of guildings : 1 floor, 3 floors, and 7 floors respectively. The last one has two floors below street level. (The researcher, 2013)

above or below street level as shown in figure (3-5). High housing buildings are located next to lower housing buildings. Therefore, variations in heights of housing buildings leave a negative influence on the coherence and the harmony of the built environment. It also leads to the deterioration of visual quality, privacy, and environmental condition where a number of housing units failed to provide enough sunlight, wind, or privacy. It can be referred to inappropriate design solutions for sloped areas on one hand, and inappropriate setbacks between buildings on the other, as shown in Figure (3-6).



Figure (3-6): A number of housing units failed to provide enough sunlight, wind, or privacy. (The researcher,2013)

Physical housing conditions are heterogeneous. Some housing units are in a very neat environment, while others are in poor urban environment as shown in Figure (3-7). Inadequate setbacks



Figure (3-7): Good housing environment and poor housing environment-respectively- in Khallet Aladas'. (The researcher, 2013)

also created neglected, unused and dirty areas, or reduced the size of open spaces around buildings.

Finally, we have found through site visits poor conditions of a number of streets like having poor pavements and inefficient sidewalks, or both. Some streets suffer from congestions, where housing units have inefficient, unused, or insufficient private and public parking areas as seen in Figure (3-8).



Figure (3-8): Cars dominate streetscape, poor street conditions (The researcher, 2013)

Khallet Aladas has urban services and open spaces as shown in Figure (3-19). Public lands are for commercial use and open green space, while the rest of the public lands are for undetermined use.

Table(3-1): The areas of services in Khallet Aladas.(The researcher,2012)

The service	The service area
1. The two shops	0.028
2. Alzaitonah garden	0.05
3. Al-Taqwa Mosques	0.14
4. Police station	0.55
5. Alreef café	0.078
6. Henny Benny	0.015
7. Empty public lands	1.34
Total	2.2

All services occupy only 2.2 Ha, which is about 3.5% of the total area distributed as shown in Table (3-1). However, Ramallah municipality provided social services in city level instead of residential neighborhood level. It explains the tiny percentage of services' areas.

A general overview of Nablus

Nablus has an important strategic location linking the North of West Bank to its South. It is located on the crossroads of main road that connect Nazareth and Jenin in the North, up to Hebron in the South. it also links Jaffa city in the West to Jericho in the East(أسرة العلاقات العامة و الدولية، بلدية نابلس، 2011) .

The old town of Nablus was built on the hilltop of Gerzim Mountain between Nablus valley and old quarries. Between 1918-1940, the process of constructions continued inside the walls intensifying the old town. Later on, the constructions were extended outside the walls, and directed to the North of National Hospital and the existing Northern cemetery. After 1940, the expansion of Nablus city was characterized by the establishment of new business center, residential buildings towards the axis of Nablus-Rafidia-Qalqilia, infill development, and the construction of refugee camps(بلدية نابلس-قسم الهندسة-التخطيط، 1995) .

Between 1967-1994, the city has expanded toward the rough Western and Eastern mountain edges due to land scarcity. The topographic profile of Nablus has required setting a certain planning policy to provide social services, improve street networks, infrastructural works that could effectively raise the low level of urban quality among residential neighborhoods. Moreover, the construction

permits allowed by Israel were not enough to adapt the city growth. However, the built environment continued to grow resulting in expanding the boundaries of Nablus to meet the population's needs (Ibad.).

After Oslo accords (1993), the Palestinian authority has become responsible for civic issues , and has started to improve the built environment including all economic, residential, and industrial sectors and transportation systems. Therefore, urban and economic development has occurred and the number of roads increased in the Western-Northern part of Nablusز

Consequently, Department of Planning in Nablus municipality has prepared structural outline plane in 1995, in order to extend the borders of the city to include 26,800 donums. The outline plan has aimed to serve the city for 20 coming years considering natural population increase and immigrations. The outline plan has also aimed to re-plan for planning land use to the face the excessive burdens of population's needs, hence population density is expected to increase from 220 m^2/ person in 1990 to 91 m^2/ person in 2015(Ibad).

After conducting several field trips throughout Nablus, different neighborhoods were shortlisted as potential study sites according to the urban problems they suffer from. By applying a more focused selection criteria composed of three main aspects, Almakhfeia neighborhood was chosen since it satisfies the following:

1. The neighborhood should be newly developed according to the current planning regulation, which was a bit difficult to define such neighborhood.

2. The neighborhood should be a result of natural and organic process, not a pre-planned housing project

3. Finally, the neighborhood should suffer from obvious quality problems (the deterioration of privacy, inefficient setbacks, the lack of open spaces and social infrastructure).

Second case: Almakhfia

Almakhfia is a residential area in Nablus city. According to the data collected from the municipality's maps, Almakhfia is located in the South West of Nablus

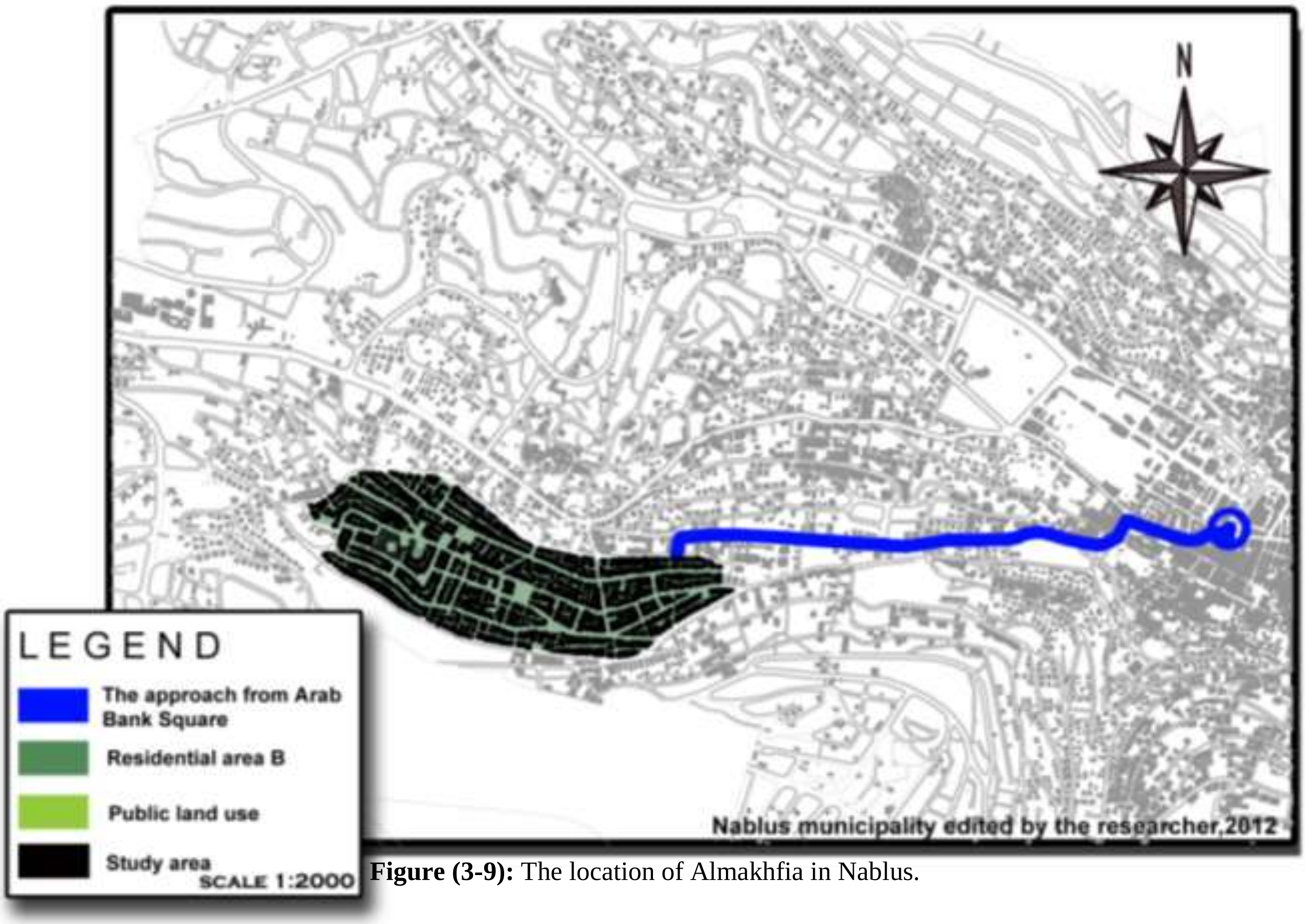


Figure (3-9): The location of Almakhfia in Nablus.

and is about 2.0 km from Arab Bank square as shown in Figure (3-9). It is a part of western basin and occupies a land area of 48.2 H

Community profile

Almakhfia has a population of 5,007 based on Palestinian Bureau statistics (2007). It increased to become 5,773 persons in 2013 with annual population growth 2.4 (PCBS, 2009). On the one hand, about 47.0% of population is under 18 years. On the other hand, 49.2% of the population is between 19-65 years. A small percentage of 3.7% is over 65 years or undetermined as shown in Figure (3-10). Due to that, Almakhfia is also considered a youth community.

Field survey shows that Almakhfia includes 3,738 housing units with an average of 4.8 persons per household (PCBS, 2007). The infill development will house additional residents and it will house about 1,650 residents. The total expected population in Almakhfia will be 9,324 by the end of the year 2025.

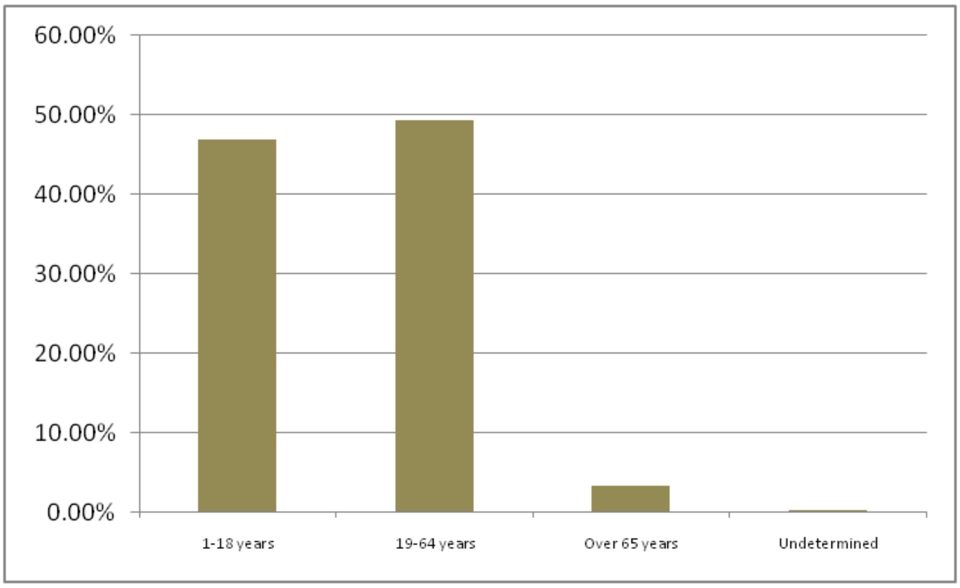


Figure (3-10): The percentage of age population groups in Almakhfia.(PCBS,2007)

The socio-economic status

PBCS of 2007 depicts that 39.6% of residents were never married, while 55.6%

was married, and a tiny proportion (4.8%) was divorced, widowed, or undetermined as shown in Figure (3-11).PBC of 2007 year shows 35.6% of the residents were currently employed as shown in Figure (3-12). The percentage of employees in Khallet Aladas is higher than in Almakhfia

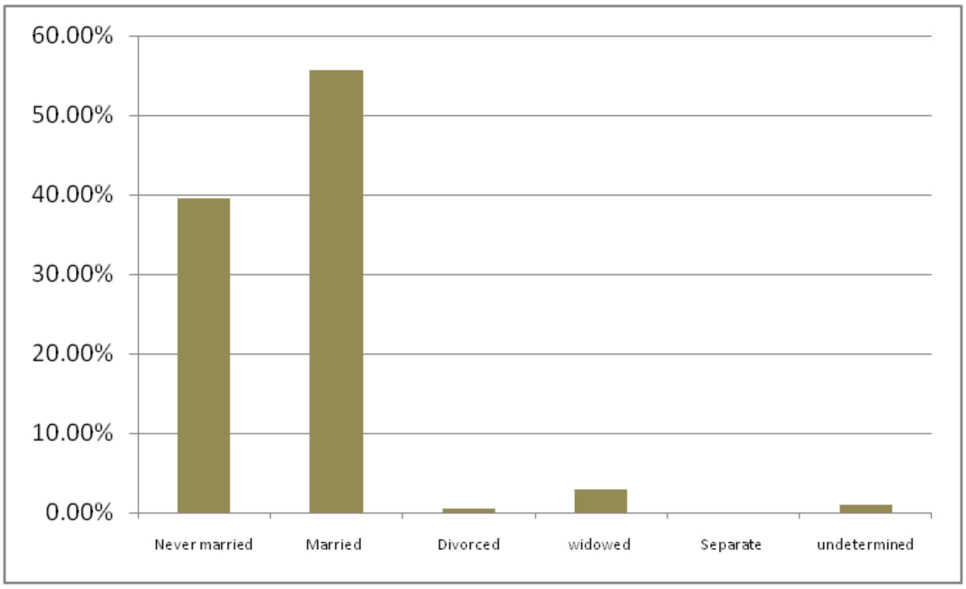


Figure (3-11): The percentage of social status for Almakhfia's population.(PCBS,2007)

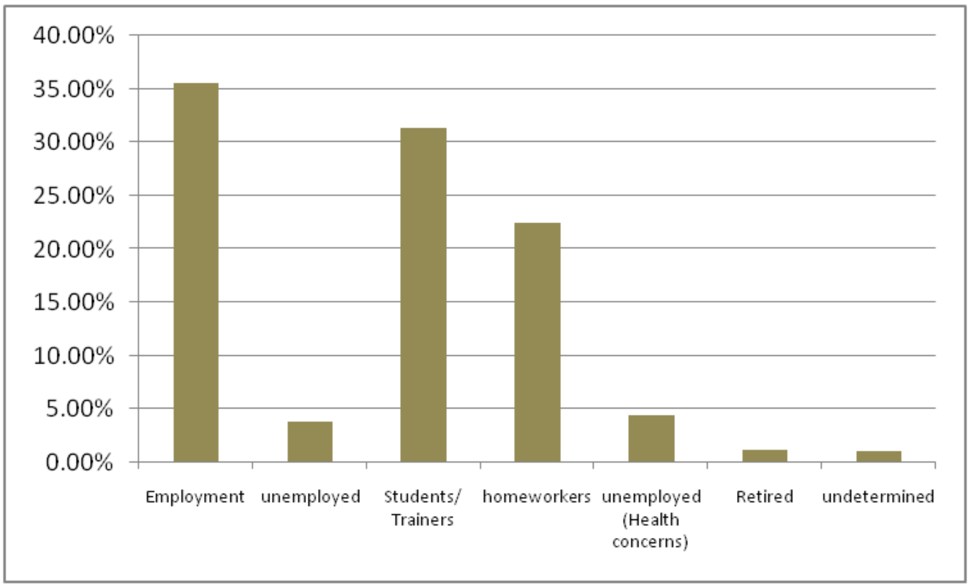


Figure (3-12): The percentage of work labor for Almakhfia's population.(PCBS,2007)

Moreover, 36.8% of the total was having a permanent income source. Almakhfia's

society has higher percentage of population under 18 years and unemployed people than Khallet Aladas's society. Almakhfia's society is almost Muslim with only 0.06% of the population is Christian.



Figure (3-13): Different heights of buildings:1 floors, and 7 floors respectively. The last one has two floors below street level. (The researcher, 2013)

<u>An overview of Almakhfia's housing conditions</u>

The field surveys looked at the space of the neighborhood as a 3D composition consisting of buildings, open spaces and circulation elements; as a result the analysis was broken into four major topics: Building height analysis, physical urban structure analysis, streets and parking conditions and open spaces analysis.



Figure (3-14): Inadequate front setbacks and departments below street level respectively. (The researcher, 2013)

The Building height analysis shown in Figure (3-13) illustrates the variation in heights from one-floor buildings to eleven-floor buildings distributed in an unorganized urban structure. This arbitrary variation created environmental problems as the higher buildings block sunlight from the lower ones.

The urban structure of the neighborhood resulted in a heterogeneous environmental conditions, where some places were found to be relatively neat and healthy while others suffered from different environmental problems including insufficient lighting and ventilation. The unorganized spatial configuration of the units and the inadequate setbacks developed several social problems such as the lack of privacy and the loss of green open spaces; especially that the number of housing units are constructed below street level without adopting good design solutions to overcome that problem, see Figure(3-14).



Figure (3-15): Inefficient sidewalks because of trees. (The researcher, 2013)



Figure (3-16): Insufficient parking and street of poor landscape. (The researcher, 2013)



Figure (3-17): Inadequate front setbacks create privacy and environmental problems in Almakhfia. (The researcher, 2013)

Finally the streets are poorly designed; lacking landscape elements in some segments while in others they lacked appropriate sidewalks due to the planted trees along the sidewalk in addition to a problem in sidewalks' pavement, see Figure (3-15). The second issue regarding circulation elements is the lack of the private and public parking spaces causing

congestions in the streets as shown in Figure (3-16). One important factor in this problem is the role of money generating and investment approaches that turn the spaces, which are originally specified for parking, into commercial and storage areas as shown in Figure (3-17).

Many small shops and cafes are found at ground level of mixed use buildings in Almakhfia neighborhood. The existing public services occupy about 3.3% of the total area of the neighborhood distributed as in Table (3-2) and figure (3-19). In addition, some public lands are reserved for future commercial development or to be used as a public open space.

Table(3-2): The areas of services in Almakhfia.(The researcher,2012)

The service	The service area
1. Three schools	0.33
2. Almakhfia garden	0.09Ha
3. Shop buildings	0.021Ha
4. Directorate of health	0.23
5. Kindergarten	0.03
6. Governmental institution	0.21
7. Business center	0.078
8. Mosques	0.11
9. Empty public lands	0.05
Total	1.6

The study aims to provide an explanation on a set of deficiencies in housing qualities in the Palestinian urban context. Therefore, these cases serve to give more insight on the main dilemma of the research. Two cases experienced exceptional development process which has changed its urban housing quality causing deficiencies. The current development process led to a deterioration process of social services, open spaces, spatial built characteristics. Consequently,

each case has been discussed in term of its own physical characteristics within its context. It also shows how each case has satisfied the study area justifications, so it could help to fill the gaps caused by rapid development through advanced analysis about the spatial housing qualities and required social services.

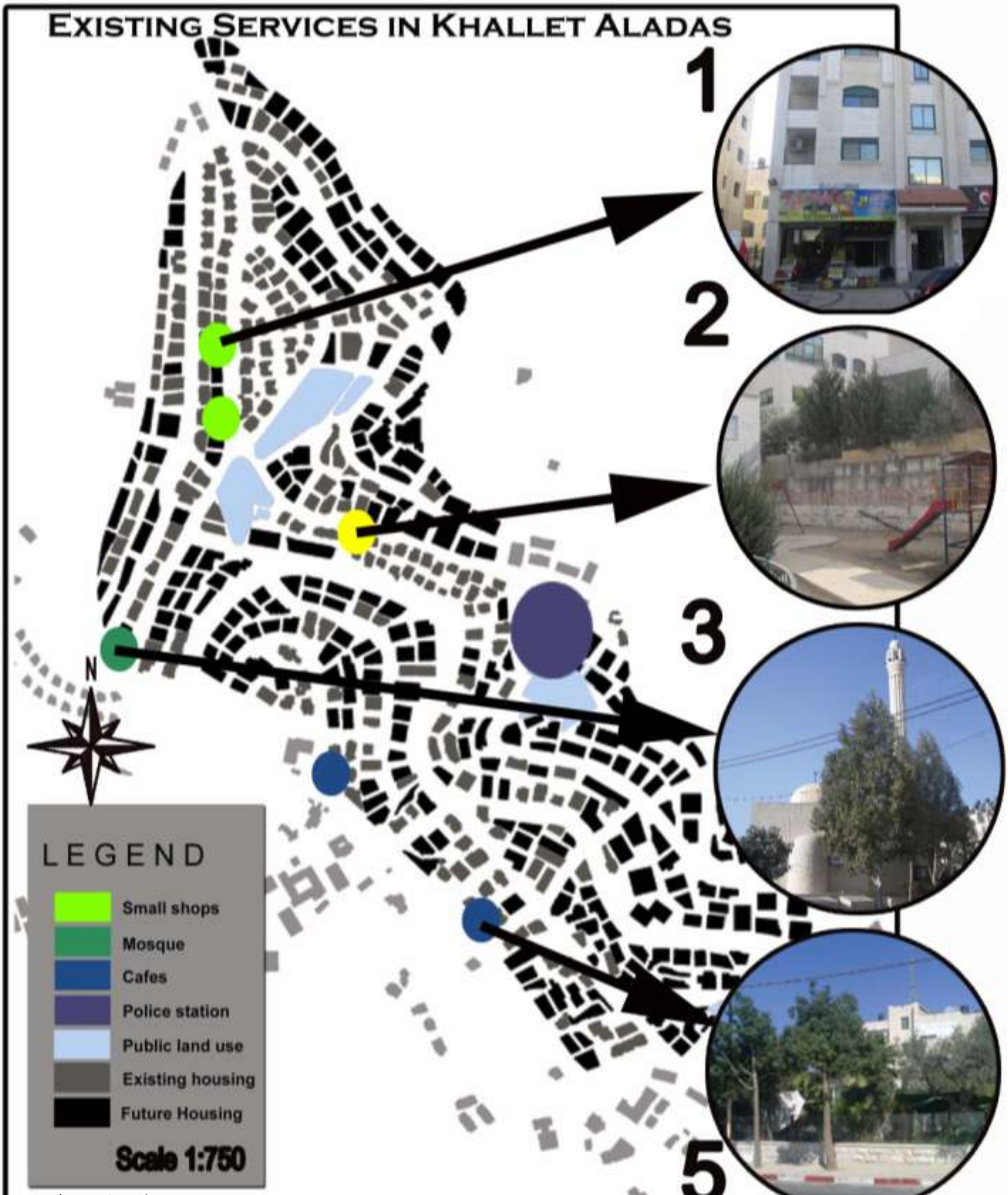


Figure (3-18)

Ramallah municipality edited by the researcher,2012

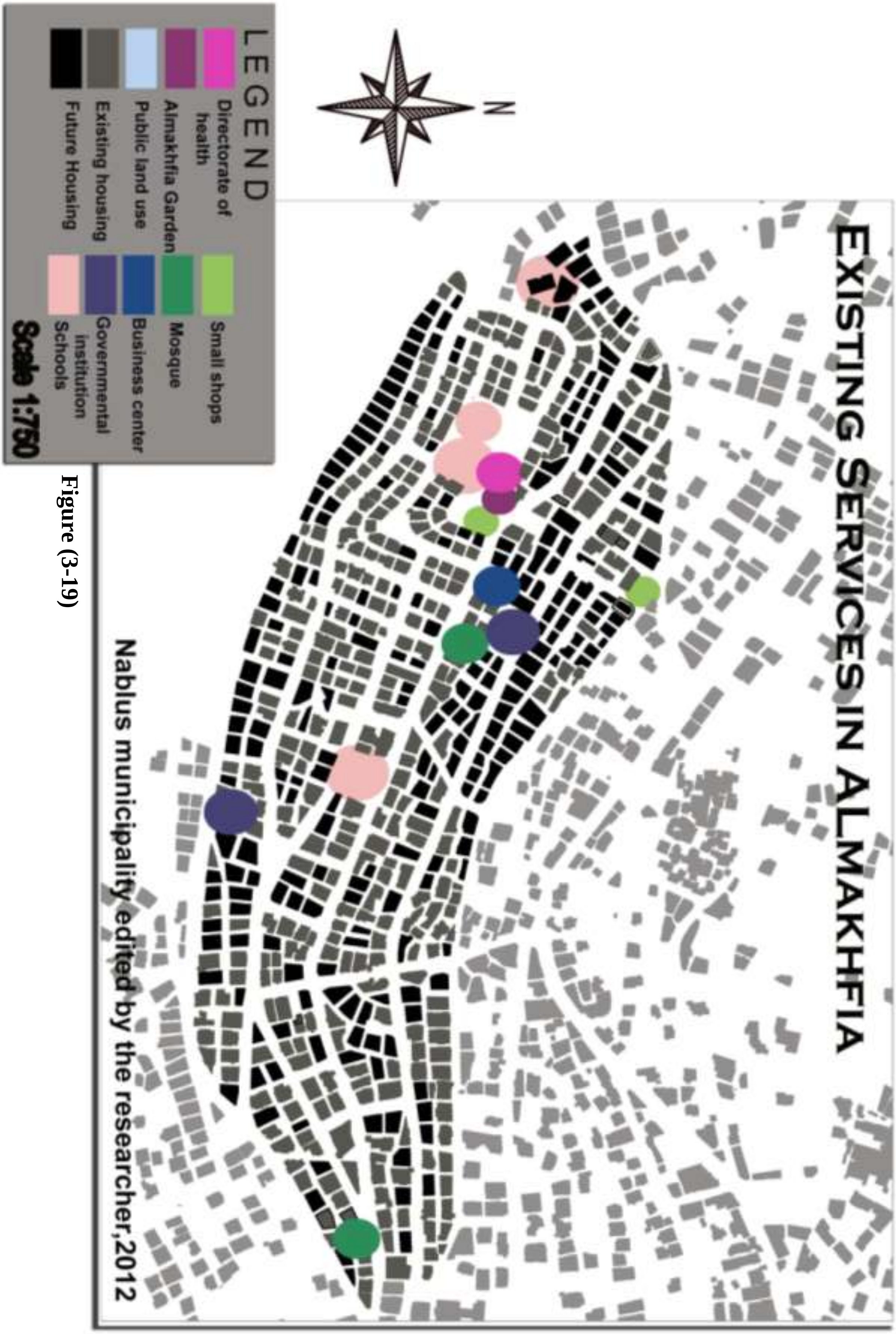

EXISTING SERVICES IN ALMAKHFIA
N
LEGEND
Directorate of health
Almakhfia Garden
Public land use
Existing housing
Future Housing
Small shops
Mosque
Business center
Governmental institution
Schools
Scale 1:750
Nablus municipality edited by the researcher,2012

Figure (3-19)

It is found that there are three main dimensions that must be discussed to facilitate understanding of urban housing deficiencies, which are: the concept of housing, life quality accompanied with housing qualities theories.

This chapter provides a theoretical background about the study including: the general overview of housing and urban housing components, historical background of urban housing development, quality of life and housing quality, housing quality measurement, theories of housing qualities including housing typology and density.

The Concept of Housing

Housing has been differently defined depending on the scope and the emphasis of analysis. Different definitions have linked housing with shelter, facilities, communities, and the needs of the population.

Sidi (2010suggested four definitions for housing regarding four different focuses:

1. Housing as a shelter and the creation of communities. UN (1978) defined housing not only as a shelter but also as a way to structure communities. This definition gives more emphasis on two main functions which housing has. The first is the interior, to have a place where different individuals of different backgrounds can possibly meet. The second is the exterior, to provide the base for good well being communities and to enjoy the richness of their lives.
2. Housing and facilities, and services. Housing is a micro physical setting connected to facilities and services, which are necessary for human life. Eldredge

(1967) also agreed on this definition, he defined housing regarding to facilities and he pointed that housing is a means to enhance living conditions by providing a number of services and facilitate, resulting in improving the overall neighborhoods' quality (David, 2010).

3. Housing as a cultural phenomenon: he pointed that housing is not just a pure physical structure, but it has also a set of social interactions, in other words it is "*a social unit of space*". Agbola (1998) also assured the cultural dimension of housing and defined housing as an economic, social, and psychological set of features collected in a special way to provide a special housing (David, 2010).

4. Housing as a commodity**:** here, each housing unit can be bought and sold by its unique market value.

Housing is multidisciplinary concept, and it is a part of social and spatial setting. Housing must meet all previous definitions to achieve acceptable levels of human well being. Federal Ministry of Work and Housing (2002) in Kuroshi has briefly summarized housing as: "the *process of providing a large number of residential buildings on a permanent basis with adequate physical infrastructure and social amenities, (services) in planned, decent, safe, and sanitary, neighborhoods to meet the basic and special needs of the population*" ((Mallo & Anigbogu, P.1).

The research will adopt the previous definition, since it is a comprehensive concept which focuses on housing within its context, and presents that there is a relation between good spatial housing qualities, facilities and services on one hand, and the easement of daily lives of populations on the other. The previous

definitions showed that spatial dimension of housing are shaped by humans' needs and social interactions. In developing countries, the composite elements of residential unit are affected by drastic change in the 20th century because of urbanization. The next section will explore the components of housing in the urban context where the focus of this study is.

Urban Housing Components

Thinking about urban housing components becomes evident in any urban housing development. In the UK as an example, the new government's approach to housing development was improved to include a range of common facilities, according to Towers (2005):

"...greater emphasis now needs to be given to the linkage between new housing and:

- *Local facilities and community infrastructure.*
- *The public transport.*
- *Established walking and cycling routes.*

Making these linkages is fundamental to achieve more sustainable patterns of movement and reducing people's reliance on car "(Towers, 200, P.62).

Perez' & Crossley (2009) suggest four main categories for urban housing requirements, housing, infrastructure, services, and public spaces (Perez' & Crossley, 2009).

1. Housing: In general, housing must be analyzed within its urban context. Its location and its relation with its context can provide access to adequate and appropriate located housing for individuals and groups -whether temporary or permanent.

2.Infrastructure**:** it is public work that processes and facilitates urban life including pedestrian and vehicular circulation. It provides the basic services and protection against natural and manmade developments.

3. Services: they are components required to ease social life. Security and equal opportunity to access services must be achieved within each community (Perez' & Crossley, 2009).

4. Public spaces**:** it includes all spaces and places, open or close, and green areas of different values which are required to enrich social integration and harmony (Perez' & Crossley, 2009).

Table (4-1): The service hierarchy in UK (Towers, 2005).

Services	5-minute walk	10-minute walk	20-minute walk, short journey	40-Minutes journey
Open space	Communal garden	Local open space	Small urban park	Major urban park, country park
Education	Nursery, child minder	Primary school	Secondary school	Further and higher education
Health		Doctor’s surgery dentist	General hospital	Specialist hospital
Shops		Daily needs	Weekly needs	Occasional needs

Communal activities	Meeting room	Community centre library	Sports centre, swimming pool	Sports club
Entertainment	Pub/café	Restaurant	Cinema	Theatre

The urban housing context determines the location of services and the required transportation routes; it is necessary to have accessible urban services, and public spaces. Table (4- 1) shows the service hierarchy in the UK as an example, since British regulations are the most familiar in Palestinian context (Palestine was under the British Mandate for 25 years). The British planning law has emerged the concept of "the service hierarchy" and it focused on the relative location of facilities to housing units.

Consequently, different spatial settings and levels of social services generate different urban housing qualities.

Historical background of urban housing development

Different theories about urban housing development will be discussed in this section considering spatial housing qualities and social aspects including:

Garden city movement, Modern movement, Lesilie Martin and Lionel March, Oscar Newman, Alice Coleman who inquires urban housing development in Western World, Besides Besem Hakim, Janet Abu Lughud, and Jamel Akbar who investigated the reasons behind the qualities in traditional built environment of Islamic World.

a. The Garden City movement

In the late 19th century, Howard had proposed a model for settlement called garden cities. He directed his ideas to achieve the best of town and country, see Figure (4-1). His model was in form of schematic diagram as the three magnets

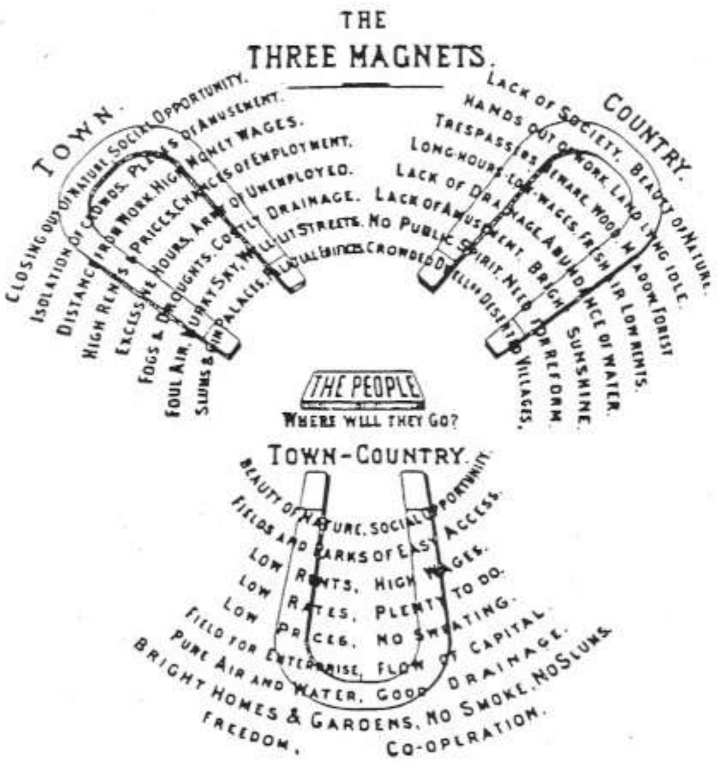


Figure (4-1): Ebenezer Howard's Three Magnets' of population settlement. (Gossop, 2006)

applied in Letchworth- the first garden city. It was considered a starting point that raised the standards of spatial housing layout, housing designs, land management, and overall environmental quality (O'Leary, 1998).

b. Barry Parker and Raymond Unwin

The principles of the Arts and Crafts movement have a great influence on Paker and Unwin. They aimed to involve artistic principles in town planning.

Letchworth garden city is one of their designs to improve local authority and garden suburb developments:

" *Parker and Unwin's design for Letchworth provided groups and short terrace of generously proportioned houses set in gardens within a framework of tree-lined avenues at an overall density of 10.5 dwellings to the acre… there was an attempt to create a social mix in the residents population"* (O'Leary, 1998, P.125).

In addition to that, Raymond Unwin introduced theories focusing on functional aspects such as developing the sun diagram that determined the orientation of streets in a plan in such a way that all houses receive a fair amount of sunlight as shown in Figure (4-2). Unwin introduced many new urban forms such as developing street intersection into wider public spaces changing existing narrow terraced houses and he also emphasized on the green character of neighborhoods. The spatial configuration of housing was a crucial issue in producing theories to solve housing problems. Studies focused on unit type, unit plan, and layout of sites (buildings and open spaces) (Rutgers & Doevendans, 2000).

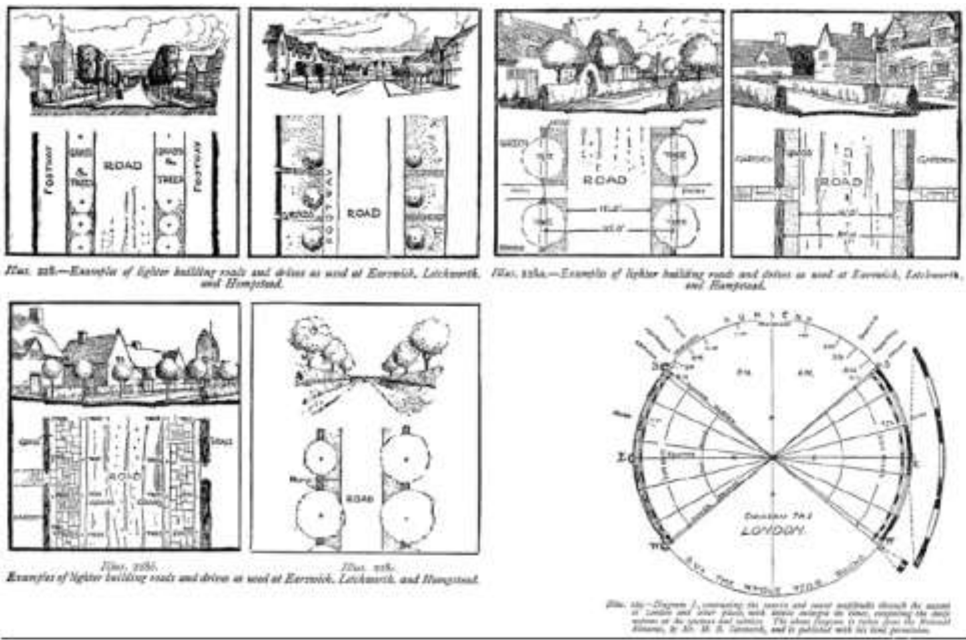


Figure (4-2): Raymond Unwin sun diagram (Rutgers & Doevendans, 2000).

c.Modern movement- High rise Towers

Between the 1930s and the 1950s, the principles of the Art and Crafts movement were replaced by a modern movement headed by Le Corbusier. His vision was called 'towers in the park'. His vision was attractive due to its high possible efficiency to house an urban population through high density towers (O'Leary, 1998).

The Modern Movement tended to achieve housing types with more light and air. Le Corbusier presented a plan for a large area of central Paris as shown in Figure (4-3); it consists of huge towers set in parkland.



Figure (4-3): A plan for a large area of central Paris (Show, 1991).

D. LESLIE MARTIN AND LIONEL MARCH (1972)

They have introduced an analysis of the basic urban development forms. These three key forms called "pavilion a", "street b", and "patio c", see Figure (4-4) (Towers, 2005).The Garden City movement preferred more greatly spaced houses - a new version of pavilion type "a". The modern movement "c" objected to the layout of continental urban blocks because of deep plans and dark

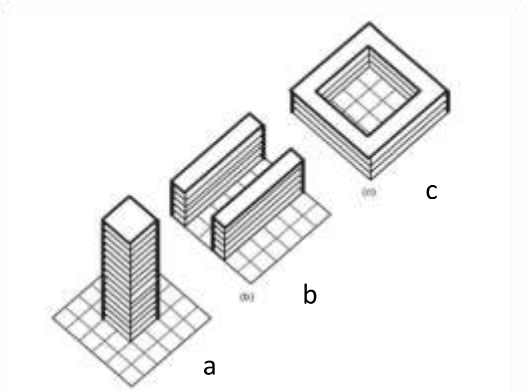


Figure (4-4): The basic forms of urban by Leslie Martin and Lionel development (Towers, 2005).

internal courts (Towers, 2005).

Along with housing density and urban housing development, many concepts have emerged as development intensity. The success of urban housing development is commonly associated with urban development intensity.

e. Besem Hakim:

He has developed principles and lessons to improve the quality of built environment based on investigating the traditional Islamic environments. His research has focused on the importance of reflecting the identity in architecture and the overall built environment. One of his important books is “Arabic-Islamic Cities: building and planning principles” which can be considered as an attempt to explore vernacular architecture in the Middle East and North Africa. The book argues the relations between society and regions; in addition it explores the relation between building practices and city planning within cultural frameworks. In his book, he also noted that the principles and guidelines of built development, which were mainly around housing and access, were derived from the spirit of Islamic practices. It has responded to resolve the conflicts of nearby neighbors due to the nature of built environment, where the continuous process of buildings and development coincided with the development of Islamic law (Hakim B. S., 2008)

According to Hakim, the principles and guidelines as well as decision making process were implemented at two levels: macro level by rulers and micro level by citizens as shown in figure (4-5).

In addition to that, Islamic cities –in one of his articles- were analyzed within two major categories: the process and the product. Each has been defined as following (Hakim B. S., 1981, P71):

"The process is the nature of decision-making related to building activity within a cultural framework. The product is the organizational nature of the built environment and its component part."

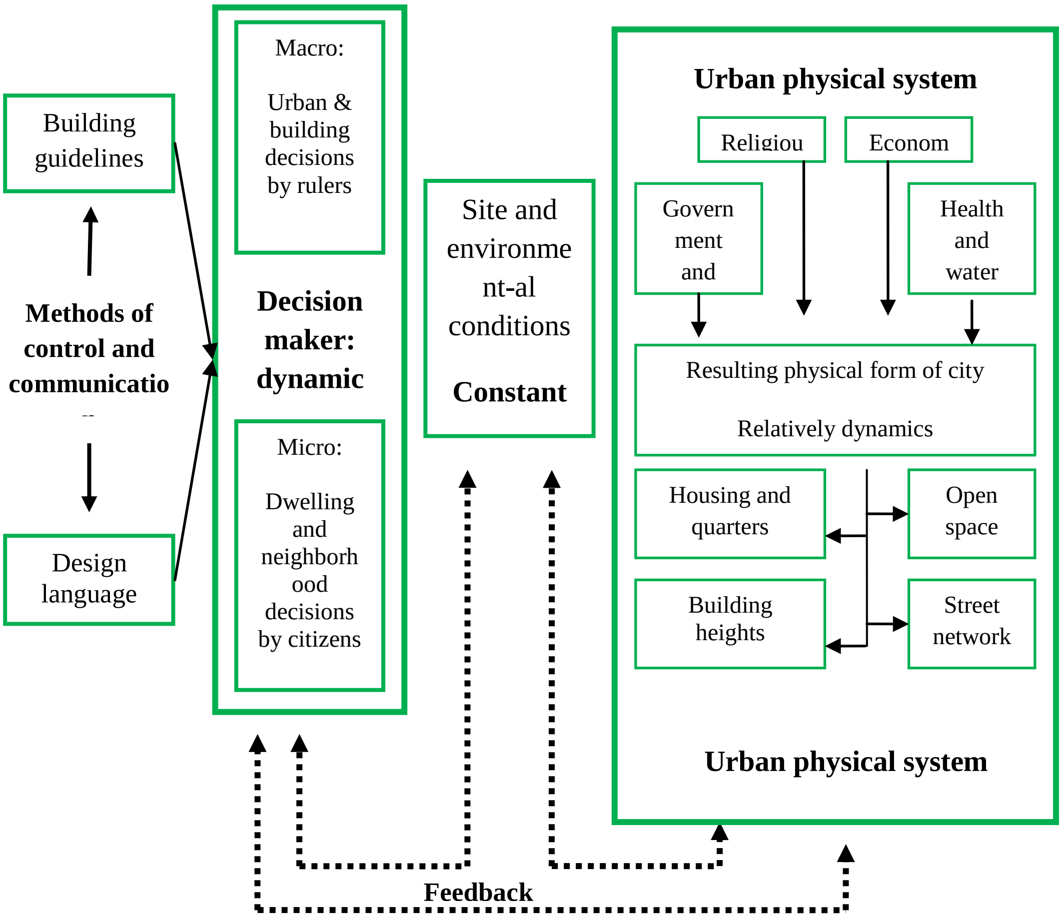


Figure (4-5): The core of building principles and guidelines of the malki school affecting the micro and macro urban decisions (Hakim B. S., 2008).

On one hand, he presented the framework of building process which can be referred to different roots: tradition and superstition, legislation, religious law, the "Fiqh" as a mechanism, and local traditions. On the other hand, he outlined the physical and cultural factors that shaped the built form of Arabic Islamic cities. He referred them to primary planning elements (Hakim B. S., 1981)

- The courtyard building, where the ratio of building area to its plot is 1:1, with approximately 24% courtyard and three storeys.
- The street system and its elements which are categorized into: the through

street(public right of way), the cul-de-sac streets, elements(arches and columns).

f. Janet Abu Lughud:

According to Janet, the creation of Arabic-Islamic cities can be referred to a terrain, climate, a technology of population, distribution and transportation, a system of social organization, and a legal/political system. However, she has focused on the contribution of Islam in shaping of the cities within its realm. She also considered Arabic-Islamic cities as a result of continuous and different processes rather than an end product. Three major elements set the motion of those processes that formed the Islamic cities. First, rough juridical distinction among population classes has been translated into spatial segregation which is reflected in communal organizations. These communal organizations were responsible to manage some functions when the state was not frequently able to control its subjects. Secondly, Islam has imposed a set of architectural and spatial imperatives based on social segregation; this has restructured spaces in a way of dividing functions and places as alternatives for unsatisfactory personal interventions. However, gender segregation does not aim to achieve physical distinction regions but rather visual distinctive regions. In other words, it aims to establish visual privacy rather than prevention of physical contact. Finally, the system of property laws regulated the rights and obligations of property rights. For example, accesses to entrances took priority over reservation of land for public purposes (Abu Lughud, 1987).

Moreover, Abu Lughud has discussed the neighborhood as a key element in civil society and the state. The separation between commercial and residential

functions has resulted in neighborhood quarters, which handled its internal different functions from those in commercial zones. She thinks that two factors have strengthened the neighborhoods at Arabic-Islamic cities: The first, the social structure where a dominant family oriented operation in the neighborhood and provided it with basic services. This family is surrounded by many poorer families. The second, the spatial arrangement of neighborhood, this works as a self- protector. The design of those neighborhoods has supported the concept of “defensible space” introduced by Newman. But, these factors have failed to be achieved by planners in today’s world (Ibid.).

g. Jamil Akbar

He is the professor at King Faisal University in Dammam, Suaid Arabia, and the author of the book “Crisis in the Built Environment”. In this book, it is found that Akbar explores – same as Janet Abu Lughud- the principles and the processes that have created the Islamic built environment but in a different approach. He emphasized on two concepts: “responsibility” and “control” which are derived from Quraan and Hadith. He suggested that the Islamic built environment is a result of the role and the level of responsibility of the users’ needs and behaviors in many parts of the Islamic world, as the built environment was not planned by a central authority rather by local decisions generating the relation between the built up and open spaces. As a result of that, the traditional built environment was in the form of irregular plans of narrow irregular streets (Akbar, 1988).

However, this responsibility has been shifted from local people to professionals who today intervene in every physical and spatial element of the built

environment through building codes and planning regulations. Moreover, he developed a model to discuss "control" related to ownership and use, and its impacts on shaping the built environment, as shown in figure (4-6).

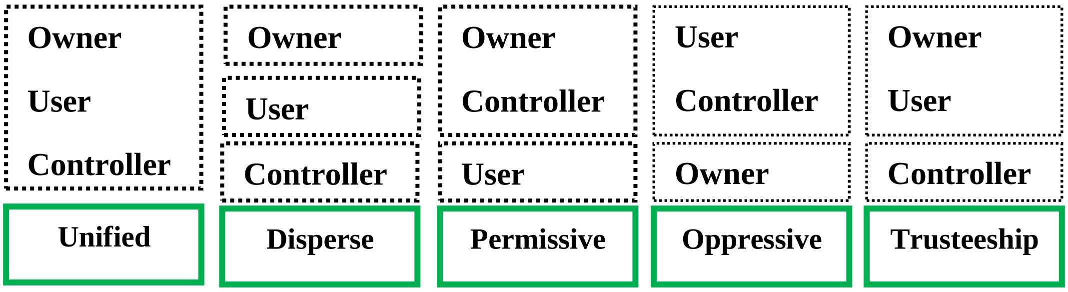


Figure (4-6): The model of submissions proposed by Jamil Akbar, (The researcher,2013)

For example, the user, the controller, and the owner are the same party in the unified form. It is the most desirable form of submissions and most of traditional built environment comes under this form. Moreover, any dispute between different parties was internally resolved (Ibid.).

Later, the identity and the type of property have been shifted from one form to another, and the unified form of submission is not the dominant type anymore. As a result of that, the property belonging to the state has increased and the percentage of controllers was reduced. Consequently, the disputes were resolved by external authority (Ibid.). For example, the municipality has substituted for private parties, and servitude and easement rights have abolished raising the need of straight and direct access for each residential unit. Therefore, the morphology of the built environment has been changed from organic form to more regular form (Ibid.).

Urban Housing Deficiencies

Instability needs for housing because of rapid urbanization caused both qualitative and quantitative deficiencies within the spectrum of housing problems like in Nigeria (Muoghalu, 1990). Third World nations are facing high concentration and visibility of deficiencies in urban housing units, making it the most urgent housing problem in these countries (Hope, 1986).

Urban housing deficiencies could be segmented into two main categories, quantitative and qualitative. On the one hand, the quantitative deficit usually refers to overcrowding or a certain number of inhabitants that lack housing shelter. On the other hand, qualitative deficits are based on the number of households whose dwellings display qualitative deficiencies, such as a dirt floor, a lack of basic sewage disposal, or a precarious location (UN, 2011). This research is focusing on qualitative dimensions.

Qualitative housing deficiencies were discussed in detail since they are the focus of this study. A number of articles were published by scholars concerning qualitative deficiencies of urban housing. For example, Gilbert (2000) demonstrated that homes that lack certain facilities such as electricity and water provision present inadequate accommodation. Perez' & Crossley (2009) have presented the most comprehensive classification and interpretation about deficioncies of housing qualities in term of housing components disscussed in section 4.2:

- Sub-components of facilities: basic services networks, road networks and environment, connectivity and transportation, and infrastructure for protecting

and mitigating natural and manmade risks.

- Sub- components of services: education, emergency, security services, culture and recreation, and private services such as commerce.
- Sub-components of open spaces: public sports and recreational areas, facilities with educational, historical and cultural values, and public space adjacent to roads, streets, walkways, cycle paths and pedestrian walks.

Moreover, The Chilean Ministry of Housing and Urban Development (MINVU) defined the concept of housing deficit as "The integral set of urban and housing deficiencies that have a significant effect on the residential habit and quality of population" (Perez' & Crossley, 2009). In other words, this definition noted a relation between urban housing deficiencies and quality of life in general, and housing quality in particular.

Quality of life and housing quality

Quality of life refers to the differences and the gaps between the expectations and the hopes of people (Beham, Drobnič, & Verwiebe, 2006). The term quality of life usually refers to the degree of being a satisfied individual when meeting the important possibilities and desires of life (Kerce, 1992).

According to Beham, Drobnič, & Verwiebe (2006), life quality has three main theoretical approaches, which are almost in line with the Centre for Health Promotion approaches (2001) at the University of Toronto (Sun, 2005):

1. Level of living: It focuses on "control over term" such as control over: money, property, knowledge, mental and physical energy, social relationship, and security

etc. This approach is entirely about the concept of "Having".

2. Capability approach: it focuses on the ability of individuals to achieve valuable simple functions like good health, or complex one like self-respect. Additionally, this approach is difficult to be evaluated since capabilities change over time due to cultural, economic and social conditions.

3. Having, loving, and being: in this approach, quality of life is based on satisfying certain interests and basic needs of individuals which are basically: having is necessary for survival (education, health, income, housing…), loving refers to participation and integration into society.

Scholars have detected quality of life according to different disciplines. Economists, for example, focus on determining quality of life in terms of income and its impacts, while urban planners inquire the overall quality of life in a community or neighborhood often using different number of indicators that reflect the quality of life for urban residents (Kerce, 1992). Lynch (1981), example, summarized qualities desired in the urban form as: vitality (healthy environment), sense (sense of place and identity), fit (spatial adaptation), accessibility (accessibility to people, activities, and knowledge) and control (Özsoy, Tezer, Gunay, Gulersoy, & Reyhan, 2009).

Different approaches of life quality generate different domains, subsequently indicators, relations, conditions, and experiences of individuals. According to Lance et al. (1995), life domains include health, finance, family, paid employment, friendship, housing, living partner, recreation activity, religious,

transportation, and education (Beham, Drobnič, & Verwiebe, 2006). However, Smith (1973) summarized life quality domains in his model, which shows the hierarchal relation between life, environment or context and housing quality (Sun, 2005), as shown in table (4-2).

In Smith's model, there are different perspectives for quality of life and discussing housing as a part of its environment. Quality of life investigates housing quality in term of its spatial context. Housing quality is an important domain since it is difficult to meet other life's domains without having a proper housing unit. The degree of housing quality also affects education, health, individuals' satisfaction, and human well being.

Table (4-2): Smith's (1973) Criteria/Domains of Social Well-Being. (Sun, 2005)

Life quality					
Economic Status	Environment	Health	Education	Social Disorganization	Participation & Equality
Income • Employment • Welfare	Housing • Streets and sewers • Air pollution Open space	General mortality • Chronic Diseases	• Duration	Personal pathologies • Family breakdown • Overcrowding • Public order, Safety ,Delinquency	Democratic participation • Equality

In addition to that, housing quality and quality of environment were defined through three main major approaches: the first one is based on subjective well being and life satisfaction which may be measured through asking people.

Second, standard of living as how the government viewed it. The third one is based on sustainable development as it is a part of planning issues (García-Mira, L. Uzzell, Real, & Romay, 2005).

Exploring different concepts to explain quality of life and housing quality has generated different types of indicators to measure housing qualities in term of its environment and context. It is necessary to specify indicators that could be related to this study.

Housing qualities measurement

Two main categories have been developed to investigate quality of life: subjective and objective. Subjective indicators include skills, beliefs, and knowledge. They refer to inhabitants' satisfaction and having positive effects. However, objective indicators are based on physical things which are easier to measure like food, shelter, pollution levels, housing costs, standard of living, the amount of money and access to goods and services that a person has (Sun, 2005 (Beham, Drobnič, & Verwiebe, 2006 (Teklay, 2012).

Both types of indicators are complementary; some scholars believe that both types are found to compensate the deficits of the other. The combination of both types helps to have results close to reality. However, it is difficult to combine them since objective indicators are measured at neighborhood level or city level, while subjective indicators are measured at personal level (Teklay, 2012).

Housing quality is measured by objective and subjective indicators as well as

quality of life. On the one hand, subjective indicators investigate housing quality in the level of individuals; it depends on personal experience so it is difficult to be measured (Sahin, et al., 2007), for example, houses are more likely to be preferable rather than flats, central areas rather than peripheral areas, modern rather than old fashioned dwellings, and respectable rather than rough neighborhoods (Pacione, 2001).

On the other hand, objective indicators are based on physical, social, economic and environmental settings. The “livability” term has been introduced to sum up all physical attributes of human well beings (Sahin, Fasli, & Vehbi, 2007). For example, Francescato (1980) introduced that the value of a residential place is mainly based on the visual and auditory privacy, the opportunities for personalization of the dwelling unit inside and outside, variety of shapes in buildings and landscapes, easy access to the ground and their parked cars, and having enclosed piece of ground that they can call their own. Other physical factors that related to housing satisfaction are structural type, tenure type, the nature of the physical surroundings, and access to services and facilities (Pacione, 2001). Santos (2007) added education, health, transport, air pollution, water pollution, and waste management to the previous indicators (Teklay, 2012).

This research will be conducted mainly at neighborhood level, based on objective indicators. It will focus on two dimensions: urban design, and social services. Their attributes will be disscussed later.

Urban Housing Qualities Theories

Developing studies about urban housing deficiencies is not a modern issue; it has its roots in the 19th century, starting in the UK. During the nineteenth century, the health and social problems made it evident to rethink about exiting housing qualities. Consequently, solutions have come up with to focus on better constructions and internal spaces to overcome overcrowding problems. On the twentieth century, a deeper look into housing densities has been considered to lower densities in inner cores of cities on one hand, and to raise densities of urban suburbs on the other.

Spatial housing qualities

Densities will be briefly discussed in this section as a main concept as well as discussing housing qualities theories. This section will give more insight on densities (definitions, theories, its relation to urban development, and intensity vs. density), and crime problems (defensible theories of Newman and Coleman)

Housing density

Here are general definitions of housing density as well as its relation to housing typology in order to broaden the understanding about urban housing development theories.

a. General definitions of housing density

Many concepts of housing density are explored to measure housing density internationally and nationally. Two main comprehensive concepts were generated as references to residential density, which are (Lynch & Hack, 1998 (Towers,

2005):

1. Net density: it divides the total number of housing units by all privately owned lands. Privately owned lands which include the housing itself and its social services as private gardens, communal gardens, children's plays and incidental open spaces, and parking areas with half width surrounding streets.
2. Project density: the same as above but adding the local support facilities, such as streets, parks, pedestrian ways and public facilities like primary schools, local health center, distributor road, and transport network etc.

Net density is used for larger planning studies, while project density is used for small residential development and if local and none local facilities can be distinguished. Later on, four concepts of residential density were developed to calculate the total population. They are as following (Towers, 2005):

1. Dwelling per hectare/ acre: it considers the total number of housing units. It is a poor reference, since there is a variation in the sizes of housing units.
2. Bedspaces per hectare/ acre: it considered the total number of single and double beds. It is an accurate measure for the total number of populations.
3. Habitable rooms per hectare/acre: it includes bedrooms, guest room, and dining room but not kitchens. It is inaccurate measure.
4. Housing floor space per hectare/ acre: it is used in part of Europe. It does not help to find the total number of population.

The first two measures are the most used. However, the total number of people depends on the dwellings' sizes, the housing design, and the degree of occupancy.

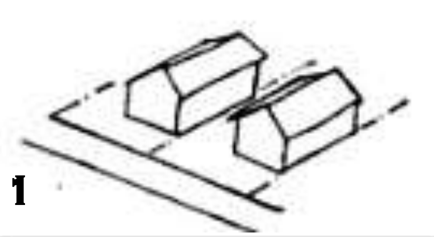
Housing density has become the key to determine the required facilities and their capacities. It is hard to provide facilities and services if densities are too low. The ranges of housing densities have become the base of planning regulation and they are as presented in British and Iraqi standards (كراس معايير الاسكان الحضري, 2010; Zoning ordinance for the city of Manchester; Zoning ordinance for the city of Manchester, New Hampshire, 2011).

The designers and planners can control the housing density by slight increase or decrease; they depend on three main decisions: how to store the automobile, the amount of private and common open spaces to be provided, and the distances between facing windows (Lynch & Hack, 1998).

Space standards had limited effect on improving urban housing quality pushing planners to rethink about good standards for spatial urban configurations, social services, and open spaces (Towers, 2005).

b. Density and housing typology

Housing density is considered a concrete base to determine housing typology and the spatial configuration of housing unit within its context. (Towers, 2005) Kevin Lynch suggested four main types of housing –see Figure (4-7 A,B) as following:



1. Detached dwelling: It is usually in low density areas. The unit layout is flexible. This housing type suffers from poor transit access, high transportation cost, and limited public amenities within walking distance.



2. Attached housing: Housing where each unit is joined side by side or one

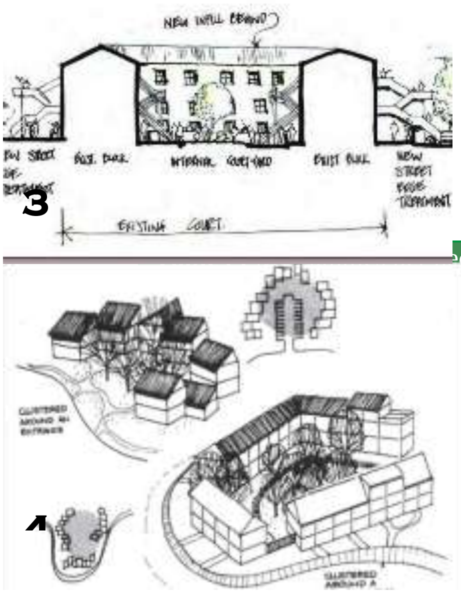


Figure (4-7A): Housing typology (Tonkin, 2008).

3. Flats: Many units per building. The design of entry and parking are a challenge due to high lot coverage. Local stores and amenities are within walking distance. Its height depends on the type used elevator. (Tonkin, 2008)

ectare (L

Net density | Neighborhood density

Up to

4. Hybrid housing: Where two typologies or more are mixed or available in the same district. (Tonkin, 2008)

Later on, Kevin Lynch & Gary Hack (1998) have suggested a model indicating typical densities of each housing type as shown in table (4-3)

Zero lot line detached	20-25	15
Two family detached	25-30	18
Row houses	40-60	30
Stacked townhouses	60-100	45
Story walkup apts	100-115	50
Story elevator apts	160-190	75
Story elevator apts	215-240	100

Consultants Paulsen and Silverman suggested three basic forms of housing in one of their major studies according to urban density (Towers, 2005), they are:

1. Detached or semi detached houses: their density is about 10-30 housing unit per hectare.
2. Terraced houses: their density can be larger than 50 units per hectare.
3. Flats: their densities are about 67units per hectare.

Housing densities of each housing type are almost equal. However, Kevin Lynch presented a housing density model with higher detailed typologies. Spatial housing configuration and the required social services have pushed planners to rethink and develop theories about good qualities at different levels: spatial urban configurations, social services, and open spaces. (Towers, 2005)

HOUSING DENSITY VS INTENSITY

Intensity refers to the intensity of use or occupancy. It is defined through different disciplines. For example, children density can be used to define the level of using local services and social interaction, and it could indicate to the degree of

deterioration of local services because of high intensity (Towers, 2005). However, development intensity refers to the physical measurements of occupied land including building bulk and coverage (Forsyth, 2003).

Kevin Lynch, one of the famous urban planners, introduced a matrix of development intensity. The matrix defines predominant housing types accompanied with building heights and ground coverage as shown in the table (4-4).

Table (4-4): Lynch Matrix of housing typology. (Tonkin, 2008)

Ground Coverage	**Height**			
Coverage /Height	High (over 6 storeys)	Moderate (3-6 storeys)	Low (1-2 storeys)	High (over 6 storeys)
High (over50%)	-	Dense walk-ups	Courtyard housing	-
Moderate (10-40%)	High slabs	Ground-access walk-ups	Attached houses	High slabs
Low (under10%)	Towers in the green	-	Free standing housing	Towers in the green

These theories are the basis of the housing design in the built environment. The housing of the twentieth century aimed to achieve openness, light, and air in addition to high density. In 1961, Jane Jacobs attacked planning and housing renewal policy in her seminal book, *The Death and Life of Great American Cities*. She argued that public housing complexes have resulted in the deterioration of the

traditional and mixed-use communities which are the base for stable communities. Moreover, by the late 1960s, high rise buildings became inefficient solution to housing shortage and have generated social illnesses such as crime, vandalism and high vacancy rates (Corbett, 2010-2011). Later on, some new studies have emerged focusing on crime and delinquency in the built environment. These studies suggested that architectural design is one of the most and unexpected crime and behavior control.

Social illness

The variety and mix uses help to support neighborhood in providing a wide range of social activities at different times of the days. To achieve that, planning is subject to control locations of buildings on streets, flexible forms of buildings, and mix uses that are compatible. Some additional studies have made significant contributions to housing qualities at a social dimension: Oscar Newman and Alice Coleman studies will be discussed in this section.

Newman- Defensible Space Concept

Oscar Newman developed the concept of "defensible space". Newman (1972) stated that: "*Defensible space is a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself*" (Bean, 2003, P.303).

Newman suggests that the residents are able to control the areas around their homes when having certain physical layouts (Marzbali, Febrauary, 2011). For example, if all houses front on to the street, that means there is potential surveillance from both sides for the entire length of the street (O'Leary, 1998).

The theory failed to meet its goals where space is not defined and its ownership is not clear. O'Leary (1998, P.131) mentioned the relationship between defensible space and its status:

" the phenomenon can also be observed with regard to the undefined space around the base of many urban tower blocks or spaces within large post-post war estates which are often uncared for, or in a poor condition"

- **Alice Coleman**

Based upon Newman's work, Alice Coleman who is a professor of geography at King's College in London prepared a study about public housing design and how it leads to crime and social illnesses. Coleman's study stated that bad design in housing could lead to bad and inadequate social behavior. Coleman stated (1990):

"Bad designs do not determine everything, but it increases the odds against which people have to struggle to preserve civilized standards." (O'Leary, 1998, P.131)

At the end, Coleman encouraged urban designers to rethink about the importance of the spatial configurations and layouts when creating neighborhoods (Corbett, 2010-2011).

Sustainable urban development

At a city level, good planning work and plans can help in satisfying social, economic, and environmental needs, and they directly impact on the quality of what is built and then shape our cities (Thomas & Cousins, 1996). Consequently, the concept of a sustainable city has emerged, according to Elkin et al (1991): " sustainable city must be of a form and scale appropriate to walking, cycling and efficint public transport, and with a compactness that encourages social interaction" (Jenks, Burton, & Williams, 1996). The proposed definition is

descriptive to what must be rather than a direct or clear urban form. Different urban forms have emerged in line with having the ability to provide the context of a sustainbile city. Compact cities and vertical garden cities are good examples for sustainable development.

The urban form of a compact city have been promoted as a contrast to suburbs of low density developments. It aims to reduce the consumption of lands and car independence based on high residential density and mixing land use, it also aims to provide more viable provison of social services and facilities. Newman and Kenworthy(1989) have mentioned bold characters of compact cities which are “high densities, centralized acitivities, and incentive landuse” (Thomas & Cousins, 1996). The commision of the European communities Green Paper on the Urban Environment provived a description for the compact cities: “its advocay of the compact city rests not just on strictly environmental criteria of energy consumption and emmissions, but also on quality of life”. Salingaros (2006) presents a compact city as a "low speed" city (Daneshpour & Shakibamanesh, 2011). However, compact cities suffer from three certain drawbacks. The supply and the demand of housing cannot meet the desires of residents. It generates social implications where middle to high income classes concentrate in central areas. Finally, the compact city represents the contradiction between the sustainable development and good quality of life on one hand because of traffic congestion and the lack of green areas (Rérat, 2012).

The main objective of the compact city is not only to support the spatial

environmental qualties but also to consider social dimensions like social equity, for example, Elkin et al.(1991) claim that: "*sustainable development involves more than environmental conservation; it embraces the need for equity. Both intra-generational equity providing for the needs of the least advantaged in society, and inter-generational equity, ensuring a fair treatment of future generations, need to be considered*"(Burton, 2001, P.1).

Social equity or social justice refers to a just distribution and receiving of the urbanization outcomes including wealth and income, it also includes the balance accessibility to the provison of social services, infrastruture, and houisng to all community groups particularly marginalized groups (Lima, 2001). A little attention was devoted to social equity since it is subjective and difficult to be measured.

The vertical garden city reflects the sustainable development for better life quality; it has been a new idea to achieve a balance between the implications of intensive construction and the ecological environment. The vertical garden city aims to promote a new urban structure for the cities. It comes as construction structures accompanied with vegetation. It is built from modular panel which resist the plant's requirement of food and water. Later on, architects and planners try to provide different green areas where it is possible like roofs; it gives a new green spatial configuration to buildings (Elinc, Kaya, & Elinc, 2013).

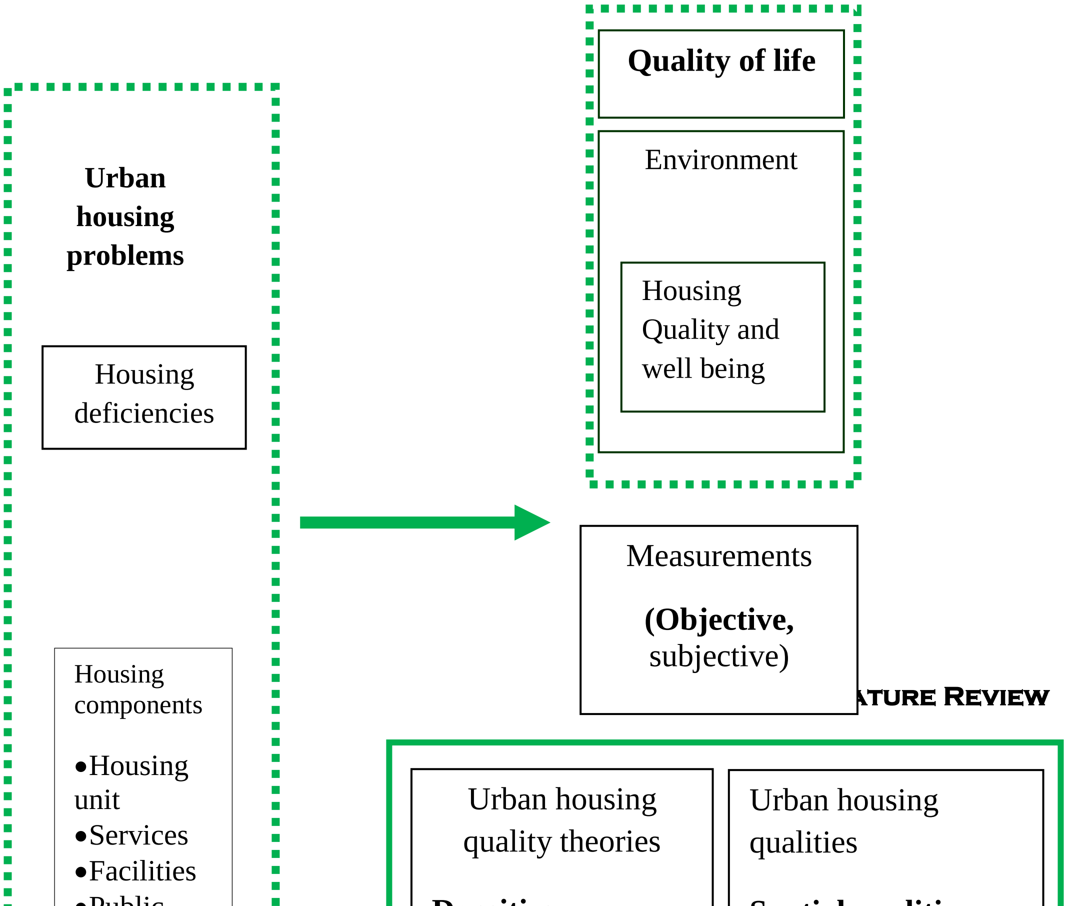
Conclusion

The concept housing quality focuses on two main direction; subjective and objective issues. The scope of this study is the objective stream at a neighborhood level. Misra & Jackson (1978) presented three main types of urban housing qualities levels; they are considerered as a part of planning regulation in most countries. First, spacial qualities standard which is concerned about unit itself and included minimum lot size, numer of buildings units / area, buidling bulk/ unit area, occupancy ratio, and density. Second, performance qualities which is related to quality of construction in term of material that have been used, and the quality of offered services. Third, threshold and range services qualities are about the upper and lower limits of amenities and community services, areas, and distances that can serve a number of population (Mabogunje, Hardoy, & Misra, 1978). This study will investigate urban housing qualities at two main levels which are:

1. Spatial housing qualities: Densities, typologies, and layouts.

2. Social services: Hierarchical services.

The existing housing qualities in Palestinian urban areas will be compared with a model generated from three pillars, which are: Kevin lynch matrix of housing coverage and heights, housing qualities in Iraq and Britain, and international housing qualities theories. Figure (4-8) summarizes the indicators concluded from urban housing theories which were introduced.


Urban housing problems
Housing deficiencies
Housing components
•Housing unit
•Services
•Facilities
Quality of life
Environment
Housing Quality and well being
Measurements
(Objective, subjective)
Urban housing quality theories
Urban housing qualities

The methodology is developed based on the theoretical framework (literature review). It is classifies into four main pillars: the research approach, Mode of thinking, data collection, and the process of investigating housing qualities problems.

Research approach

The research is based on case study strategy. It focuses on a contemporary phenomenon within a real life context. This approach is not only data collection but a comprehensive research strategy; Yin explored a logical approach to design case studies and to collect, and analyze data (Yin, 2003).

This research meets the requirements of using case study approach. It deals with a certain range of time between 2012 and 2025, which could be considered as a contemporary period. Third, this research explores the phenomenon of housing qualities problems which is one of life's domains investigated through two local exploratory cases.

This study explores two local case studies: Khallet Aladas in Ramallah and Almakhfia in Nablus. The research will introduce each case using maps, figures, and photos. Then, the results of each case would be compared to international housing qualities theories and regulations.

Mode of thinking

The research is based on both inductive and deductive research approaches. On the one hand, an inductive" bottom top" approach depends on exploratory cases

and observations. On the other hand, deductive “top- bottom” is usually based on the international housing qualities and theories, then to be applied them on local cases. See figure (5-1).

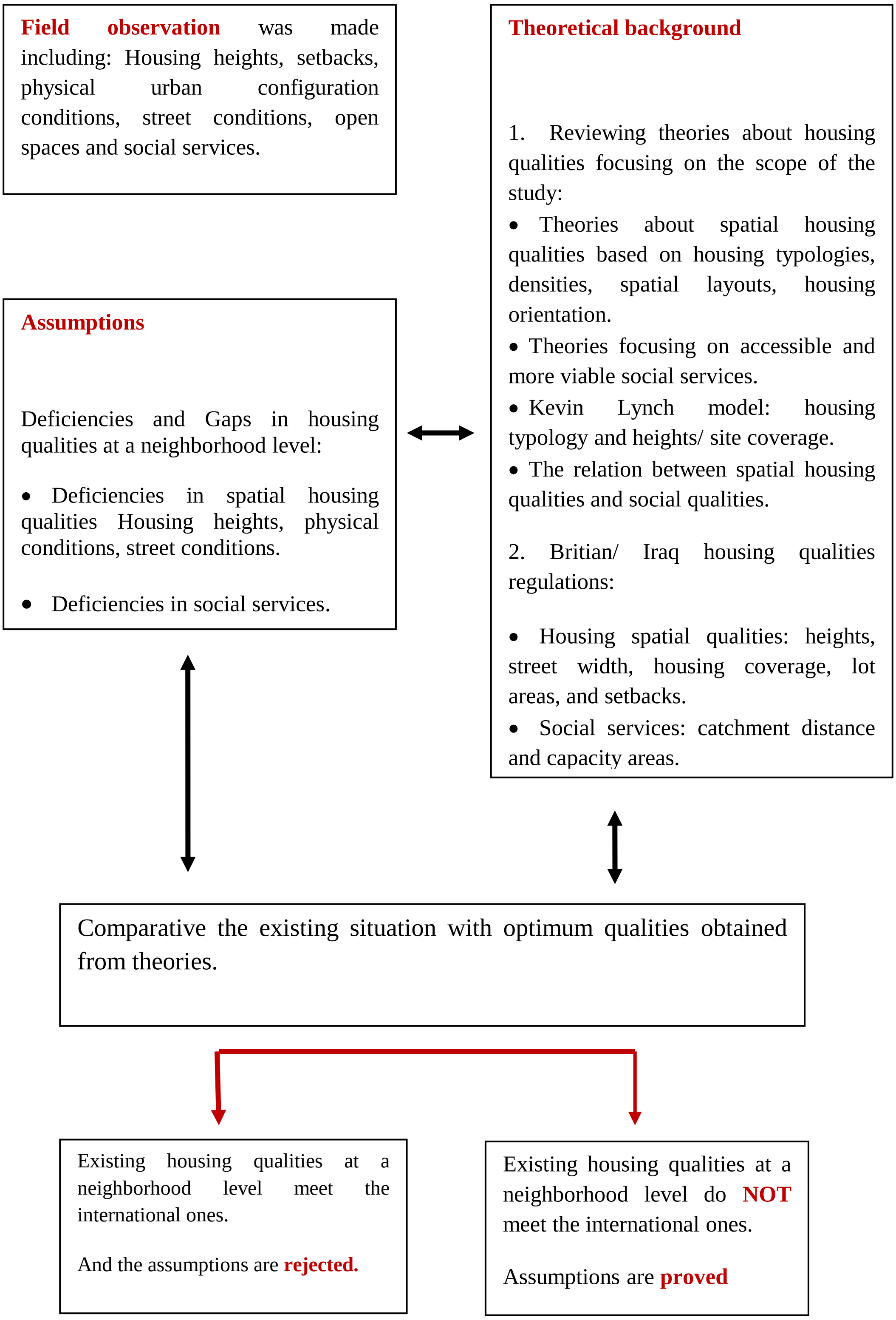


Figure (5-1): Inductive and deductive approaches in the research. The source: (The researcher 2012).

Data collection

Qualitative approach is adopted to obtain required primary and secondary data. It is about exploring issues and phenomena, and seeking out questions to answer "why" the analysis has been made this way. It is usually used to analyze open ended questions, feedbacks, and photos. So it could help the researcher to understand the real life phenomenon within its real context.

This study is based on two types of data: primary and secondary data. Those two types are used to establish more reliable data, and to present stronger base for case study approach.

Primary data

The primary data are not collected previously to be original information (Kothari, 2004). Qualitative method is used in this study to achieve primary data.

- **Field survey**

The field survey is conducted through walking in the streets starting from the early morning 8:00am till the sunset 6:00pm for six days. The first phase took place in 6th -9th of November, 2012 in Khallet Aladas, and the second phase took place in 3th -6th of December, 2012 in Almakhfia. The site map and photos are used for data documentation. The field survey aims to inquire urban characteristics of housing. Collected data are organized to give a meaningful interpretation including typology of housing, number of buildings' floors above and below street level, number of units, number of parking, existing public amenities, In addition to infrastructure, services and open spaces.

- **Interviews**

The study involved interviews with ten engineers from different sectors; the ministry of Local Work and housing (N=3), Ramallah municipality and Nablus Municipality (N=3), NGOS (N=1), academic institutions (N=1), local people living in the study area(N=2). Interview questions were based on the research questions; it was mainly about:

- The difference between housing projects implemented through housing cooperative associations and present housing projects.
- The main deficiencies in residential neighborhoods at spatial and social levels.
- Possible interpretations for the existing situation.

The information collected from the interviews will give more important insight of current situation.

Secondary data

These data are mainly maps for study area, public services in Nablus and Ramallah, and population profile made by Palestinian central bureau of statistics organizations. Secondary data can be analyzed to obtain primary data.

The process of data analysis

Both qualitative and quantitative data are analyzed as shown in figure (5-2). The study will focus on objective assessment. It will be divided into three main parts as explained in the next sections.

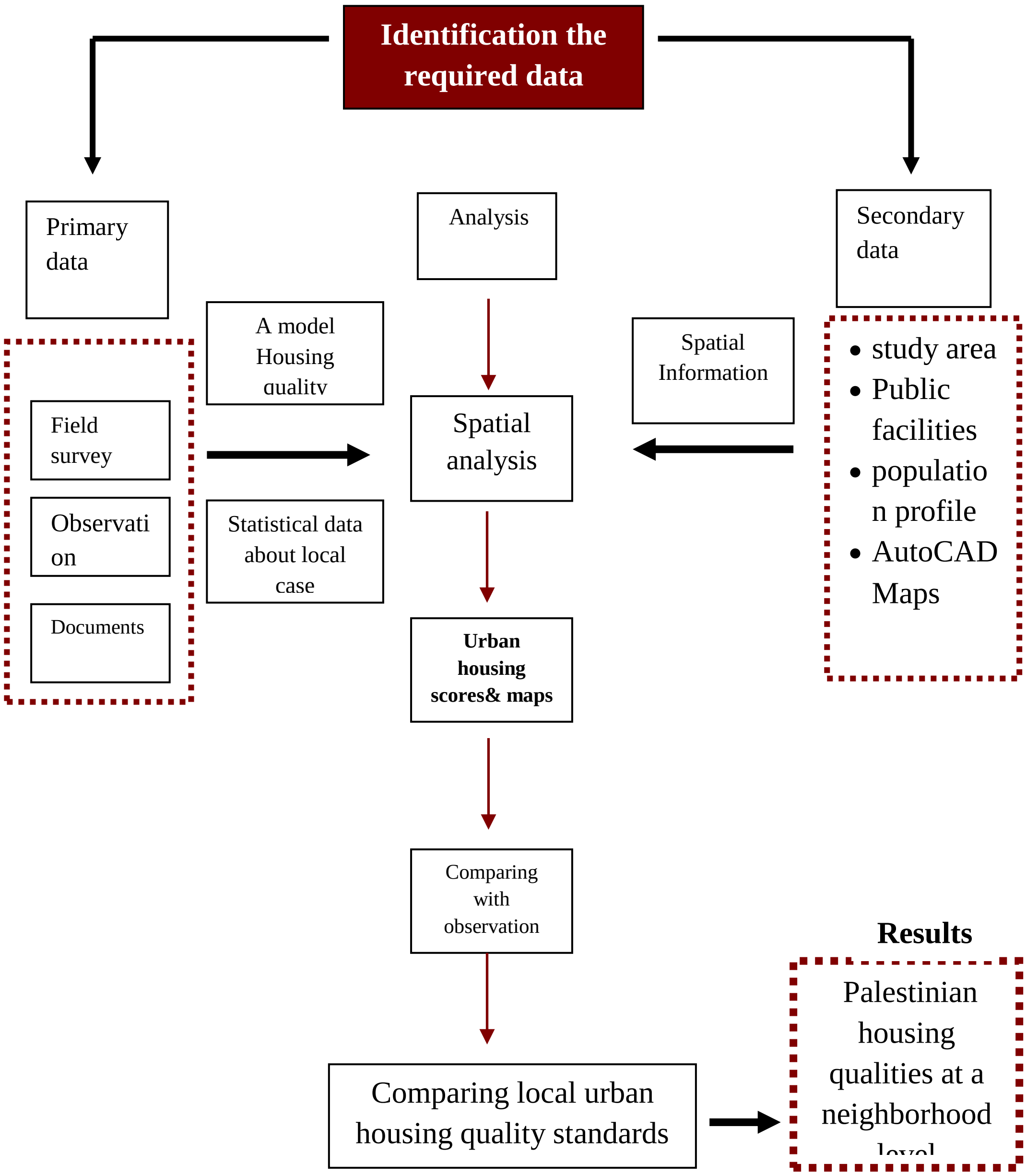


Figure (5-2): A diagram shows the process of data analysis. (The researcher, 2012).

Assessment of urban housing quality of units

Objective indicators are determined to include: height/coverage ratio, height/street width ratio, orientation, lot area/unit, and setbacks. These indicators will be compared to the suggested score. The desired scores obtained from a comparison

between British, Iraq, and using Kevin Lynch housing matrix. See appendix (1).

Score method is used by Twitchell (1948), Pollard (1953) and Kain and Quigley (1970) in the USA and tried by Sule (1982, pp. 182--6) in Calabar, Nigeria. The method addresses penalty points to housing qualities that did not meet the accepted minimum standards (Muoghalu, 1991). The most desirable quality score for each objective indicator is 3.00. And negative values are considered. The mean score of each indicator is computed, and this used to measure the objective housing quality of the whole study area, see appendix (2).

Social infrastructure assessment

First of all, specification of social infrastructure is determined, which are:

- The demand (population profile)
- The distance the people desire to walk to the facility.
- The capacity of existing facilities

Then, the level- that the facility will service- is clarified in table (5-1):

Table (5-1): The level of social facilities. The source: (The researcher, 2012).

City level	District level
Health facilities Education: secondary school open space: park Churches Entertainment: Museums & library Other facilities: post office, police station, fire station	**Education**: elementary school, kindergarten open space: district park mosques Entertainment: Cafes & community center

The most desirable quality score for each objective indicator is 1.00. Existing values ranges between 1 and 0. Zero value refers to non-existence facility. And to determine the score of each unit from certain facility, the following equation is used:

Area score= supply area/ demand area*

To determine the desirable access between housing units and facilities maps with three essential layers prepared:

- The location of existing Facilities obtained from Ramallah and Nablus municipality.
- Route networks to determine the shortest walkable distance between facilities and housing units.
- The location of housing units within study area.

Walking distance varies between countries. However, guidelines for human settlement Planning and design has been used in this research. Scores of facilities access achieved by each housing unit was rated on scale 1 to 0. Access scores of each housing unit decreases as the physical distance from facilities decrease. See figure (5-3). Finally, the mean score of each

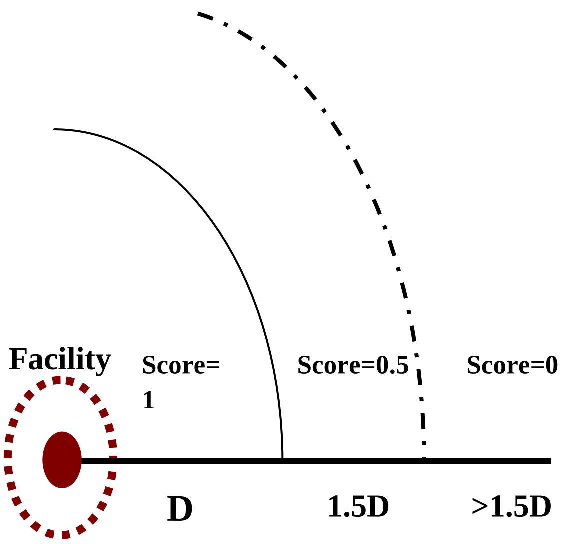


Figure (5-3): A diagram of access scores rate. The source: the researchers

indicator is computed, and this used to measure the objective

Justifications of using Iraq and British housing qualities/ regulations

The assessment will be based on a model developed from a comparison of British, American, and Iraqi housing standards in line with theoretical backgrounds mentioned in Chapter 4.

The study aims to contribute a fundamental knowledge for decision makers to develop planning regulations, policies, and guidelines, and that is why it is important to choose housing qualities which are familiar to local decision makers in order to make the whole study understood. British housing qualities are familiar in our context since Palestine was under the British mandate for 20 years. Moreover, the housing qualities of two countries are chosen: one from developed countries which is Britain, the other from developing countries which is Iraq. Iraq has almost the same political context and history of Palestine; both countries were under British mandate for a long period. However, Iraq has developed its housing qualities to overcome the problem of inherited planning regulations and wars. Even though the wars that Iraq suffered from during the 1980s led to massive destruction of their infrastructure and a post-trauma shock that lasted a while, they were still able to overcome enormous challenges in rebuilding their country. Not only Palestine and Iraq have the same political history but they also suffer from political instabilities at present moment and for the next years (probably for the proposed period of the study). The complex situation of Iraq and its ability to

overcome post wars period make it an appropriate one to compare with. Common political history and present conflicts are important as well as the geographical proximity.

The model takes into consideration the local context of the study areas, such as topography, climate, and community characteristics.

1. British Zoning Ordinance

- Zoning ordinance of Manchester (Zoning ordinance for the city of Manchester, New Hampshire, 2011).
- Zoning ordinance of Oxford (City of Oxford: zoning ordinance, 2003).

2. Iraq Housing regulation (كراس معايير الاسكان الحضري, 2010).

The indicators of urban design

The indicators are summarized as following- see table (5-2). Here are some illustrations about the spatial criteria which are used in the research:

1. The ratio of housing height to coverage percentage (H/C): The adopted criterion H/C ration is based on Kevin Lynch matrix which presented in section 4.7. The suggested criteria are: (6 storeys/ 50%) for residential buildings, equal or above (1 or 2 storeys/ (10-50%) for attached housing. However, the suggested criteria for single housing units is based on the average of Iraq standard and British standard which equals to (2 storey/ 40%).
2. The adopted criterion Height/street width ratio is based on the adopted criterion ranges from 0.5 to 1 (Stockport Metropolitan Borough Council, 2007).

3. The adopted standards of required lot area depend on the total number of housing units built in the same lot and housing density. The required lot areas are as following: 557m²/ single housing or attached housing, and 697 m²/ first three units of flats, plus 139 m²/ each additional unit.

4. Raymond Unwin have discussed a model of the optimal orientation of streets and housing units according to the sun diagram (O'Leary, 1998) as presented in section 4.3. It is the best to achieve optimum sun access and best fresh air quality. The adopted criterion is adjusted in term of local environmental issues. Due to that, the best building orientation in Palestine is East-West (وزارة الحكم المحلي, 2004).

5. The setbacks are based on the average of setbacks of the suggested countries, ignoring America. Since America planning regulations supports the concept of free standing buildings. See appendix (2).

Table (5-2): Assessment indicators in term of housing unit itself. (GSIR, 2000; Green & Argue, 2011; كراس معايير الاسكان الحضري, 2010)

Physical indicator	Factors	Model			
Density	Housing type	Low density <25 units/ha	Medium density – single and two family Residential buildings 25-50 units/ha	High density- single family, multifamily housing 49-74 units/ha	High density- single family, multifamily housing >74 units/ha
Housing layout	Plot size	557m²	278m²/unit Attached housing 557 m²/unit –single housing 139 for each additional unit	697m² /3 multifamily housing 139 m²/ each addional unit after 3	139m² /unit
	lot width	24m	22m	18m	18
	lot coverage	30%	40%	For single housing >50%	For single housing >50%
	Housing height	10.7m	10.7m	14m	>14
	Setbacks				
	front	5.5m	4.5m	6m (1m for each additional floor store)	1m for each additional floor store
	Rear	6m	6m	5m(1m for each additional floor store)	
	side	4m	3m	3m (1m for each additional floor store)	

Table (5-3): The assessment model for social infrastructure. Source: (GSIR, 2000; كراس معايير الاسكان الحضري, 2010; Green & Argue, 2011)

The indicators of social services

Provisions	Indicators	Walkable distance(m)	Capacity area(ha/ 1000 person)
Education	Kindergarten	500	0.05
	Primary school	1000	0.1
	Secondary school	1500	0.2
Health	Clinics	1000	0.012
	General hospital	1500	7beds
	Specialist hospital	2000	7beds/
commerce	Daily shops	500	0.0045
	Weekly shops	1000	0.1
entertainment	Cafes	500	0.03
	Community center	500	0.01
	Libraries	1500	0.06
Religious	Mosques	800	0.15
	Churches	1000	0.15
Parks/green areas	District park	1000	1.0
	City park	2000	1.0
Saftey	Fire station	1500	0.01
	Police station	2000	0.02
Other service	Post office	2000	0.01

The indicators are summarized in table (5-3)

This chapter provides an assessment of housing quality in both cases: Khallet Aladas and Almakhfia. Each case will be introduced in separate section. First of all, the housing typology of each case will be discussed to determine the number of housing units in each study case. The assessment investigates housing quality in term of spatial housing qualities and provided social services. Each indicator will present data obtained from field survey and data collected from governmental institutions, the suggested optimum indicator, and represent the match and mismatch between the measured indicator and the optimum one.



Figure (6-1): Single housing unit, attached housing unit, and apartments in Khallet Aladas (The researcher, 2012).

Spatial Housing Qualities analysis: the case of Khallet Aladas

This section presents housing quality indicators in term of spatial housing qualities including: housing types, housing density, Housing height/lot coverage, housing building height/ street width, orientation, and setbacks. Each indicator will go

through data collected from field survey, the suggested optimum score, and finally the percentage of housing buildings that are equal, above or below the suggested score.

Common housing types in Khallet Aladas

Due to housing classification of Kevin Lynch and Consultants Llewellyn Davies presented in section 6.3, the field survey found three types of housing units in Khallet Aladas- as shown in figure (6-1) which are:

1. Single housing (SH): it is in a form of a separate building for one family or growing up families who share the same kitchen and bathrooms. It could have a simple design or villas design with more decoration in stone.
2. Attached Housing (AH): two housing units with two different entrances. They are attached side by side or above each other.
3. Flats or apartments (RB): a number of housing units share the same entrance and stair case. It can low rise or high rise buildings. It presents 61.1% in existing situation and 82.0% in the future year.

Housing density in Khallet Aladas

Housing densities in residential areas A, B, and C are 60Hu/ha, 65Hu/ha, and 84Hu/ha. The overall density is about 71Hu/ha. Based on the information presented in chapter four, Khallet Aladas is considered as a high housing density area. It is important to state that the high density in Khallet Aladas refers to that the high percentage of apartments of flats presented in the area plus the high number of housing building floors.

Housing height/ lot coverage (H/C)

On the one hand, the filed survey introduce the number of storeys in each surveyed housing type as following: single housing, 1 storey (9.0%), 2 storeys (40.9%), 3 storeys (34.8%), and 4 storeys (15.3%), Attached housing, 2 storeys (26.1%), 3 storeys (60.9%), 4-5 storeys (13%), flats, 1-3 storeys(8.4%), 4-6 storeys(77.9%), 7-9 storeys (12.7%), and 10-12 storeys(1.0%),see figure(6-2).

On the other hand, the different ranges of lot coverage percentage of surveyed housing buildings are presented in figure (6-3).the field survey shows that the coverage percentage of each housing type as following: (15-55%) for single housing, and (15-80%) for attached housing and flats.

Based on the standard proposed in section 5.5, the analysis reveals that only 27.5% of housing buildings meet the suggested standard of H/C ratio as shown in figure (6-4). The percentages of surveyed housing type in each residential zone that meet the suggested standard are: 58.8%, 63.0%, and 27.5% in areas A, B, and C respectively, see appendix (2).

Housing height vs. street width

Housing heights obtained from field survey were discussed in previous section (6.1.1). However, the street widths are collected from Ramallah maps. Both housing heights and street widths are presented in figure (6-5). The ranges of street widths in term of the ranges of housing heights are shown in appendix (4). Data collection reveals that housing buildings of 12-18m height presents (33.6%) and is served by 10-12m street width

Based on section 5.5, the adopted H/W is 0.5-1.0. Therefore, the study reveals that 68.8% of surveyed housing buildings meet the suggested score as shown in figure (6-6), see appendix (5). Besides the different housing heights of both street sides create imbalance sense and have negative on closure sense as shown in figure (6-7). However, it is important to note that the closure effect can be achieved by trees with specific height.

Orientation

Orientations of housing buildings are easily measured from Khalet Aladas's map. It can be measured through different ways. In this study, the angle between the short axis of each housing building and North -South axis is chosen. The angles of all surveyed housing are presented in figure (6-8).

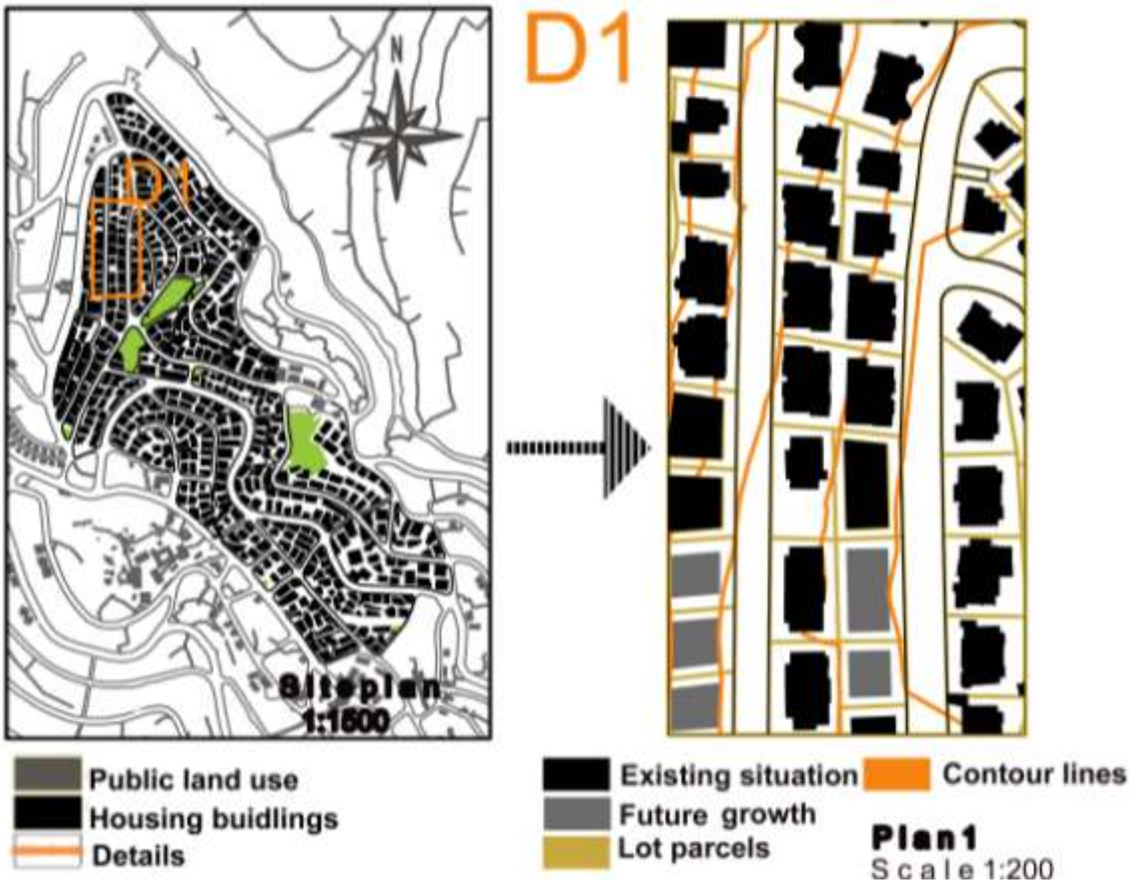


Figure (6-9): The orientation of housing buildings follow determined by contour lines and lot shapes. (The researcher, 2013)

suggested angle equals 0°. As a result of the analysis, (49.2%) of housing buildings meets the optimum orientation, see appendix (7).It is important to note that the orientations of housing buildings in the surveyed area are predetermined by the lot shape and topography causing bad housing orientations, as shown in figure (6-9).

Lot area per housing

On the one hand, the number of units of each housing buildings were collected through field survey. On the other hand, lot areas in the study area are collected from Ramallah's map see figure (6-10). See appendix (8). The total percent distribution of housing units that are equal, above, and below the suggested standard in the three zones A, B and C is shown in figure (5-11). See appendix (9)

Results show that 31.4% of single housing and 82.6% of attached housing do not have the minimum lot area. Therefore, 96.6% of surveyed residential buildings (flats) are below the suggested standard.

Housing setbacks

This section presents data and analysis of four setbacks: front, rear, and side setbacks. Each is presented in separate section. The setbacks differ from one location to another. It depends on the overall density as shown previously. The area is classified into three main residential areas with three different housing unit densities.

- **Front setback**

The front setbacks of buildings are collected from Ramallah's map, see appendix (10). 74.0% of housing buildings in zone A, compared to 82.4% in zone B, and 55% in zone C, have front setbacks from 4.5m to 5m.

The results, as shown in figure (6-12), reveal that 15.8% of housing buildings in area A, and 4.85% of housing buildings in area B have front setbacks less than the suggested front setback which is 4.5m. The analysis reveals that zones A and B enjoy better quality in term of front setbacks than zone C where 89.2% of surveyed housing buildings do not have the minimum suggested score. It has negative effects on massing plus reducing the available front open space for landscaping and playgrounds (Architect, 2014)

- **Side setbacks**

The right setbacks of buildings are collected from Ramallah's map, see appendix (11). It illustrates that 75.6% of surveyed housing buildings in zone A, compared to 79.4% in zone B and 63.1% in zone C, have side setbacks from 3.1m to 4m, which is the largest percentages comparing to other setbacks ranges.

10.1% and 7.2% of housing buildings in the surveyed areas A and B have less than 3m right side setback, and it is better than zone C where 29.3% of surveyed housing buildings are below the adopted standard, as shown in figure (6-13).

For left setbacks, the largest percentage 69.8% of surveyed housing buildings in zone A have left setbacks from 4m to 5m. 84.24% of surveyed housing buildings

in zone B have 3m left setbacks. The highest percent (67.6%) in zone C has left setbacks from 3m to 4m. See appendix (12).

Results shows that small percentages 6.7% and 7.88% are below the minimum required side setback (3m) in areas A and B. Worse in area C, 26.1% of surveyed housing units have left setbacks less than the optimum side setback. Results are presented in figure (6-14). The deficiencies in side setbacks have negative effects on the air access, sun access, and service driveway width that is necessary to the rear open space.

- **Rear setbacks**

The rear setbacks of housing buildings are collected from Ramallah's map. See appendix (13). Data collection illustrates that 73.1% of housing buildings have rear setbacks equals to 5m. 81.82% of housing buildings in zone B has rear setbacks from 3m to 4m. 69.3% of housing buildings in zone C have rear setbacks from 4m to 5m.

Results indicate that a small percentage 16.8% in area A is with rear setback less than the adopted standard. Worse, 86.06% of housing buildings in area B are below the adopted rear setback. Moreover, the majority (82.4 %) of surveyed housing building in area C has rear setbacks less than the minimum standard. Figure (6-15) shows that a high percentage in Khallet Aladas has deficiencies in rear setbacks because of extra buildings' height. Rear setbacks usually provide family gathering spaces in good weather days, but they are not used anymore because of the deterioration of privacy (An engineer working at the Ministry of

Local Government, 2014).

Parking

Field survey shows that the design of parking stops varies from one building to another. Some buildings have outside parking where parking occupies a part of gardens. Some have parking in ground or underground level. The number of parking stops of each housing buildings are collected through filed survey. The study area has 3703 parking area. Based on the suggested standards presented in section 5.5, additional 1191parking stops will be required by the year 2025. The results show that 72.7% of housing buildings does not have the required number of parking stops. The total required parking stops is 4899, while there are only 3708 parking stops. See appendix (14). It is important to note to a dissertation from an interviewee, who pointed that investors are selling parking stops to residents when parking stops at any residential buildings is not enough to serve all housing units within that residential buildings. Hence, the cost of housing units with parking stops is higher than housing units without any parking stops (An engineer working at GIZ, 2014).

However, the parking deficiencies are higher than what calculations have showed. Some parking are not used, or not properly planned, while others are planned to be in front of housing buildings causing visual pollution and traffic congestion.

Entrances connection to street

Field survey shows that all housing buildings connected to street, and easily accessible. However, housing units are connected to streets of different conditions. Some streets have asphalt pavements and two sidewalks, while others

have one side walk and poor asphalt pavement. Results show that 87.4% of housing buildings are connected to streets with good conditions. See appendix (15). Even though the highest percentage of the surveyed housing units is connected with street having sidewalks, the sidewalks cannot be efficiently used. It is because of inappropriate width or the existence of plants in its middle.



Figure (6-16): Streets without pavements, streets with two sided pavements.(The researcher,2013)

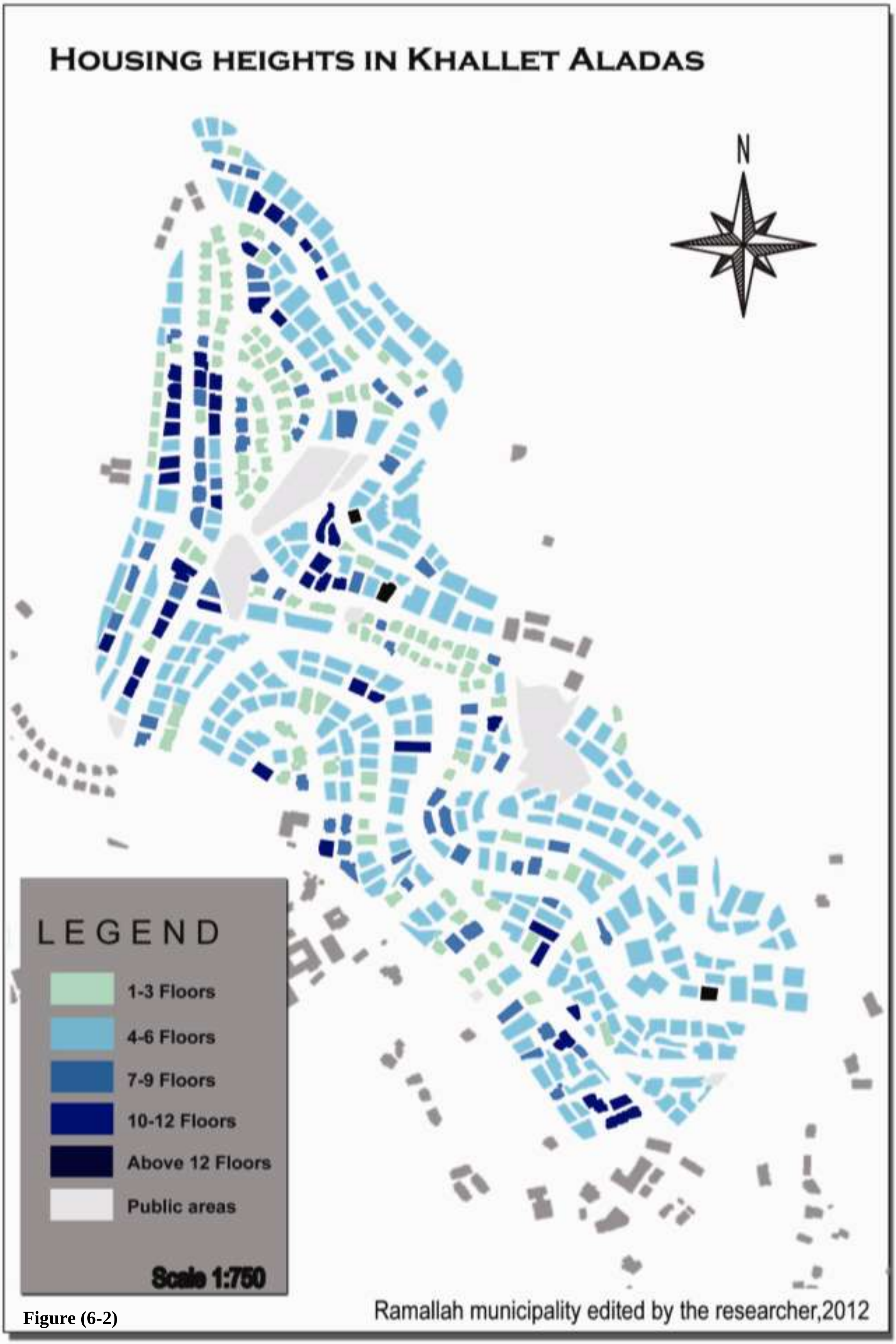

HOUSING HEIGHTS IN KHALLET ALADAS
N
LEGEND
1-3 Floors
4-6 Floors
7-9 Floors
10-12 Floors
Above 12 Floors
Public areas
Scale 1:750
Ramallah municipality edited by the researcher,2012

Figure (6-2)

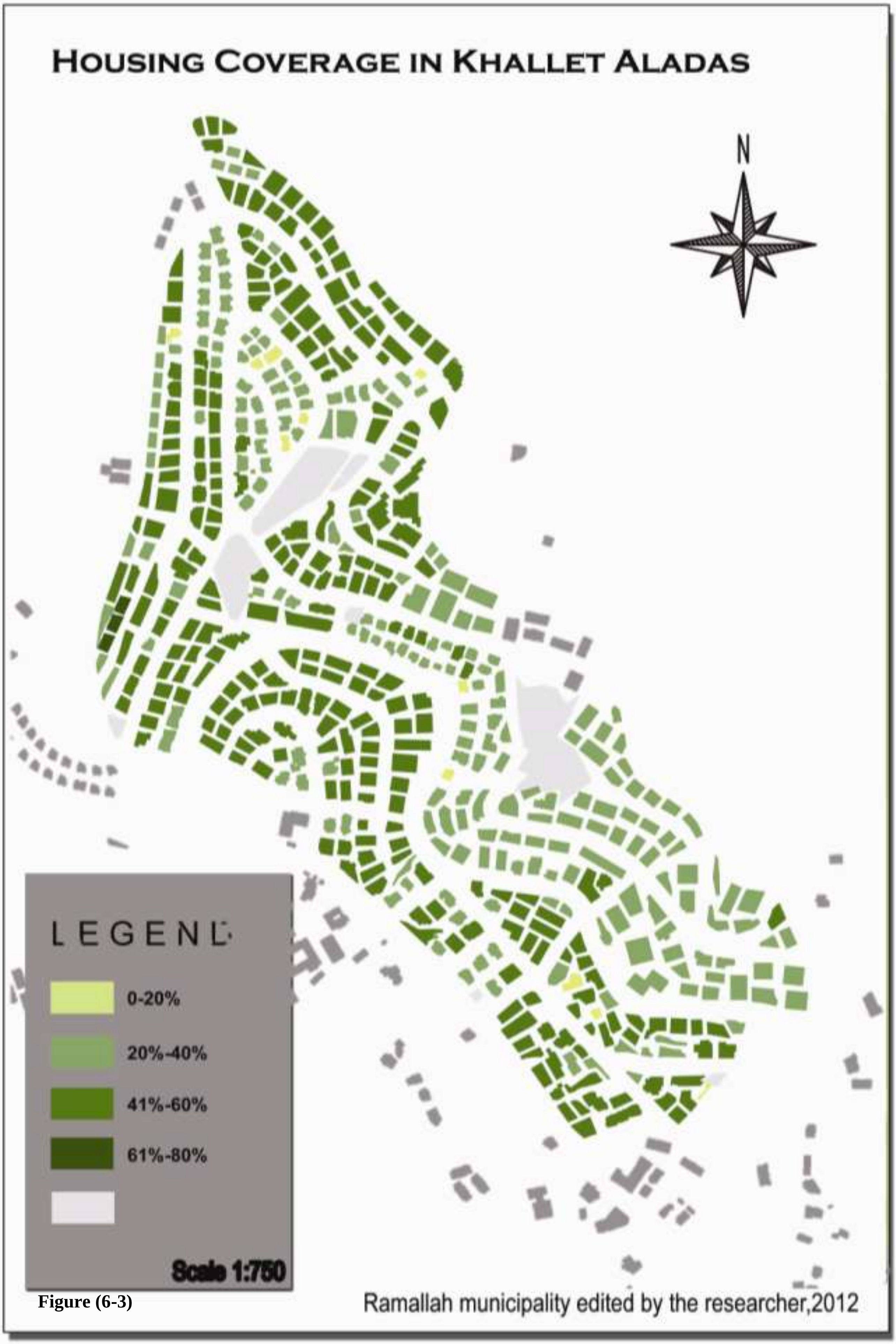


Figure (6-3)

Ramallah municipality edited by the researcher,2012


Height/Coverage Ratio Check map in Khallet-Aladas
N
LEGEND
Meet the suggested height/coverage standard
Above or below height/ coverage standard
Public areas
Scale 1:750
Ramallah municipality edited by the researcher,2012

Figure (6-4)

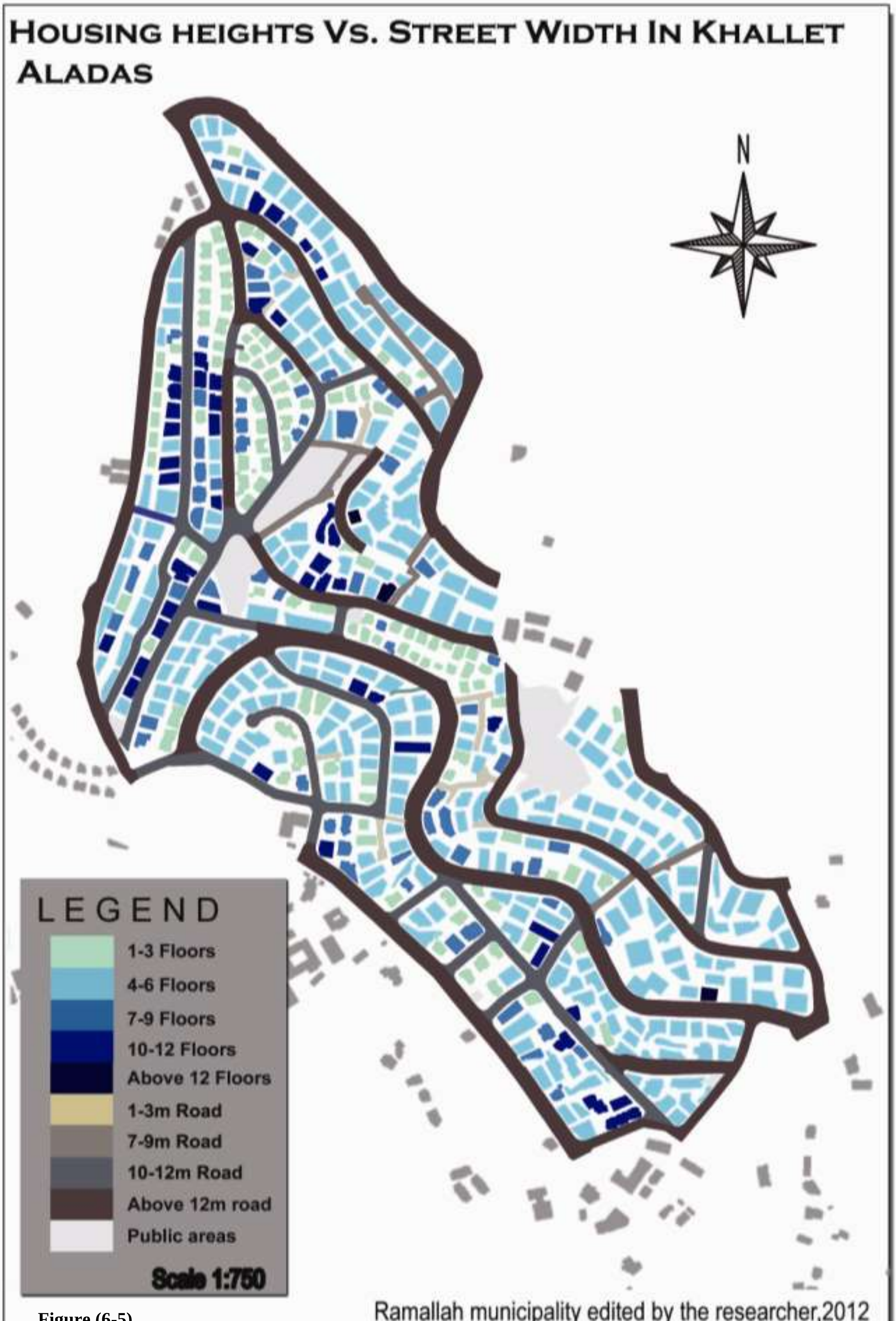

HOUSING HEIGHTS VS. STREET WIDTH IN KHALLET ALADAS
N
LEGEND
1-3 Floors
4-6 Floors
7-9 Floors
10-12 Floors
Above 12 Floors
1-3m Road
7-9m Road
10-12m Road
Above 12m road
Public areas
Scale 1:750
Ramallah municipality edited by the researcher,2012

Figure (6-5)

HOUSING HEIGHTS VS. STREET WIDTH IN KHALLET ALADAS

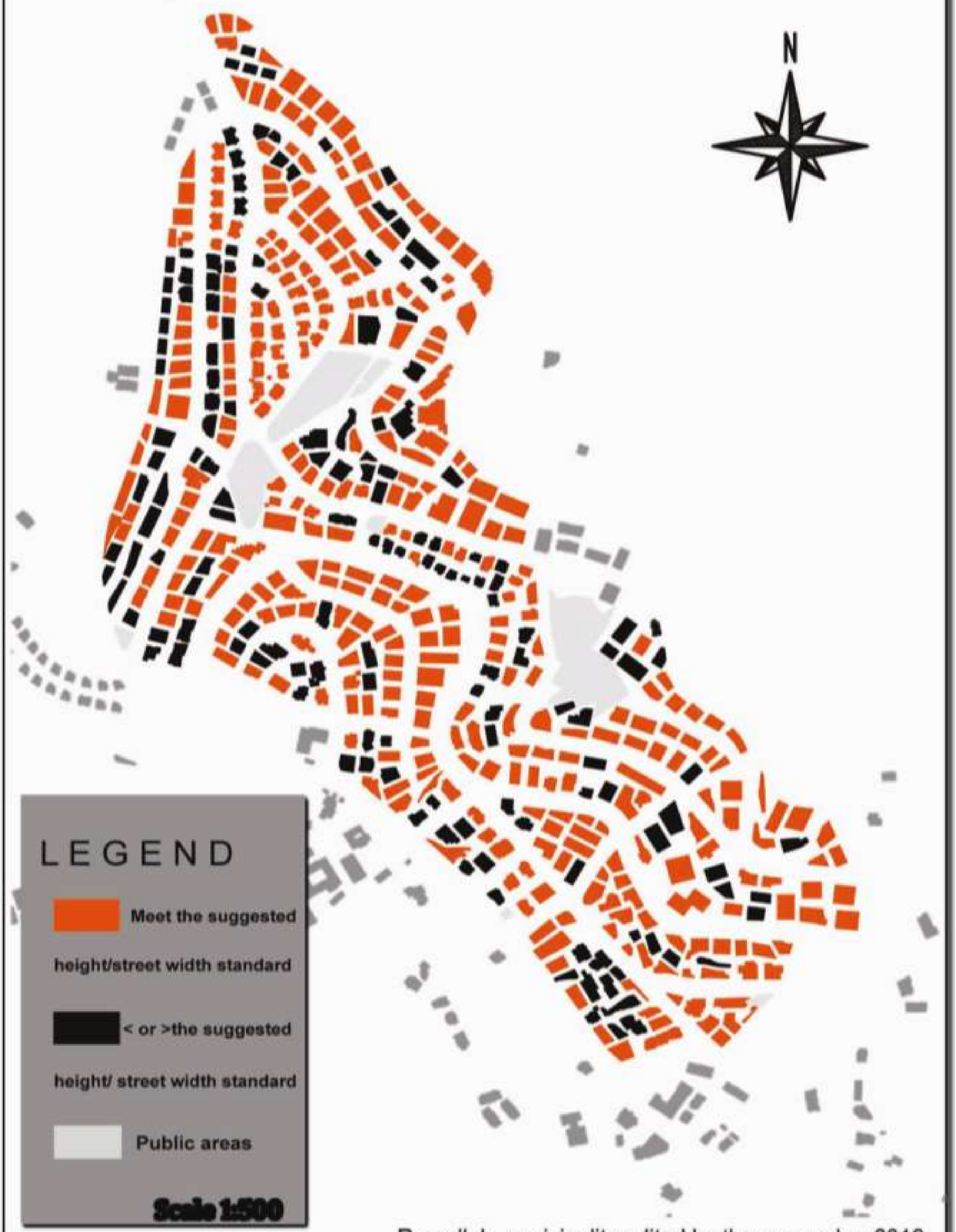
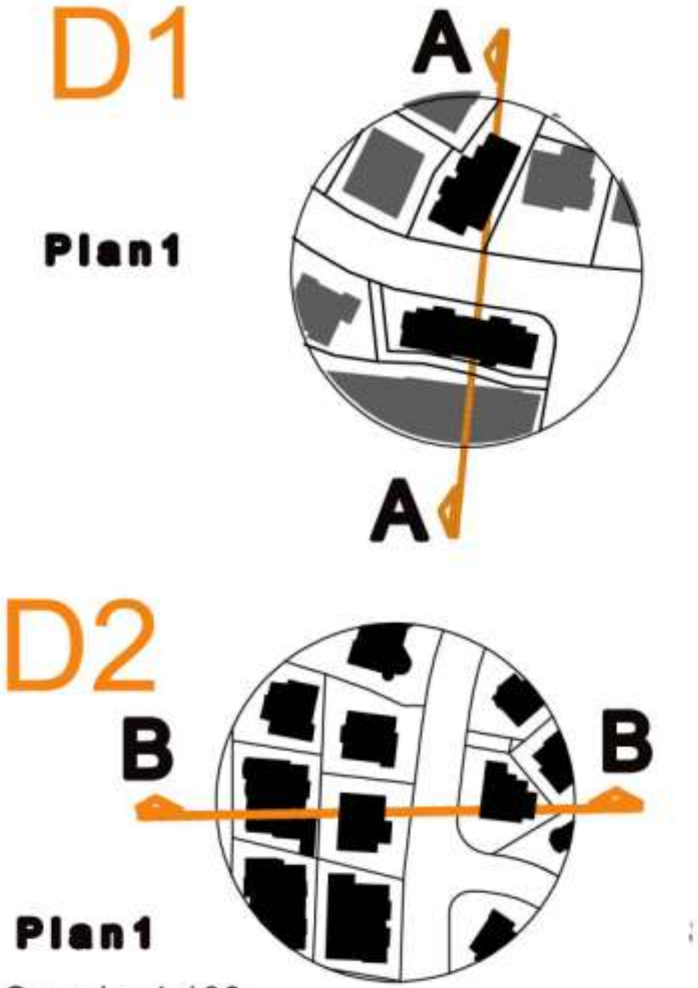


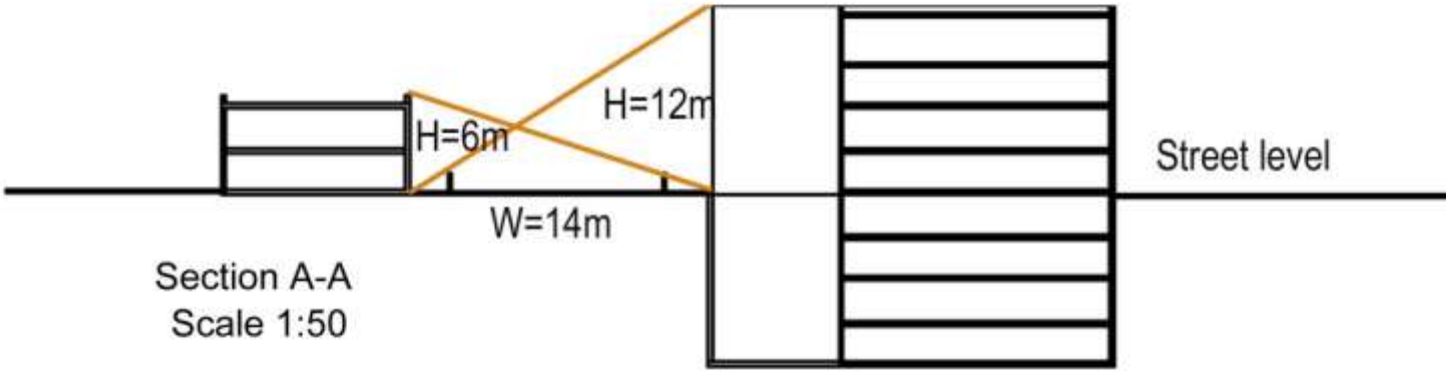
Figure (6-6)

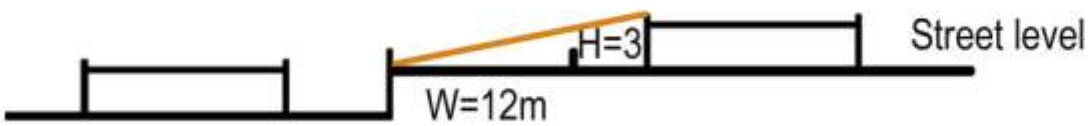
Ramallah municipality edited by the researcher 2012



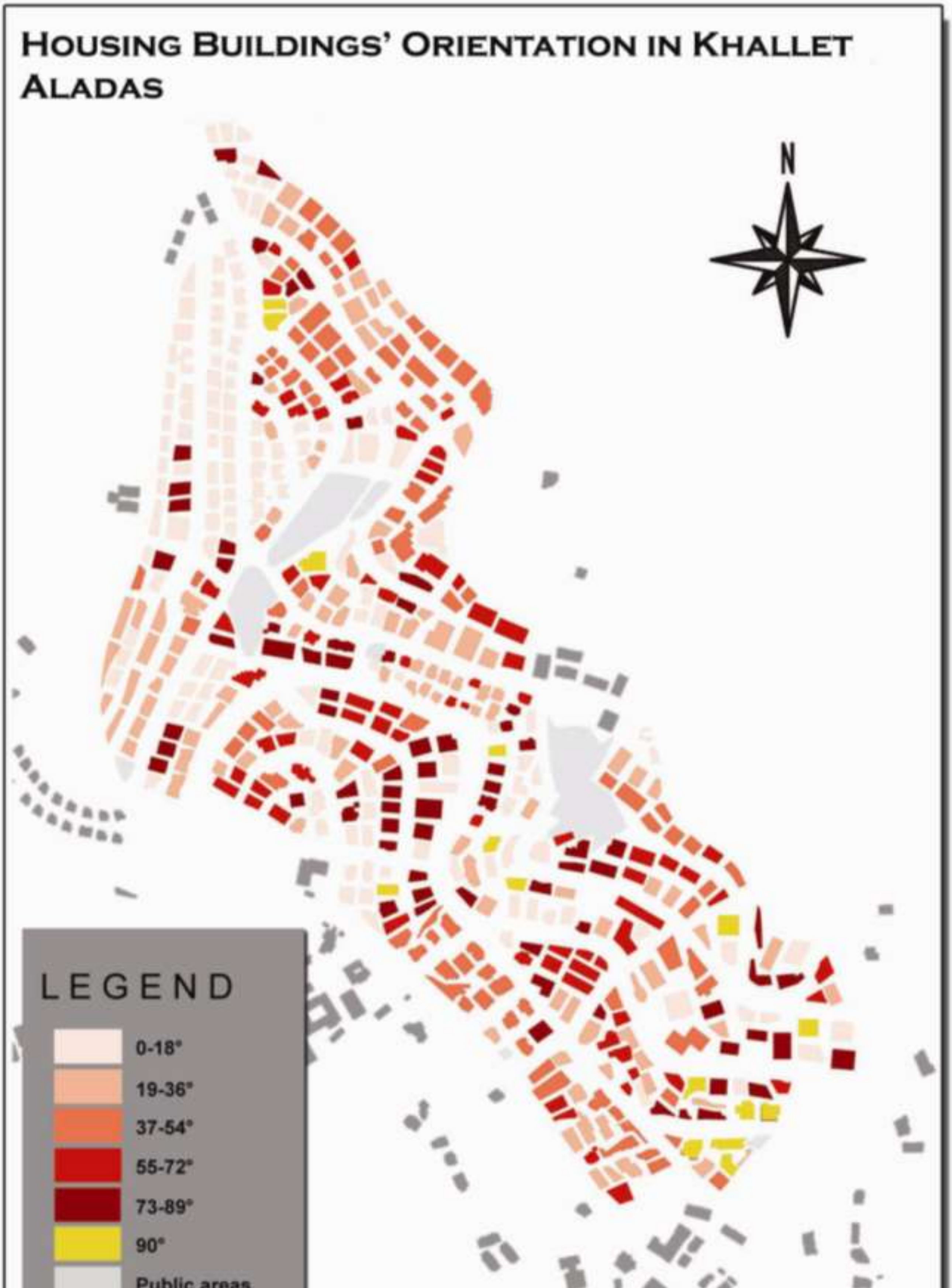


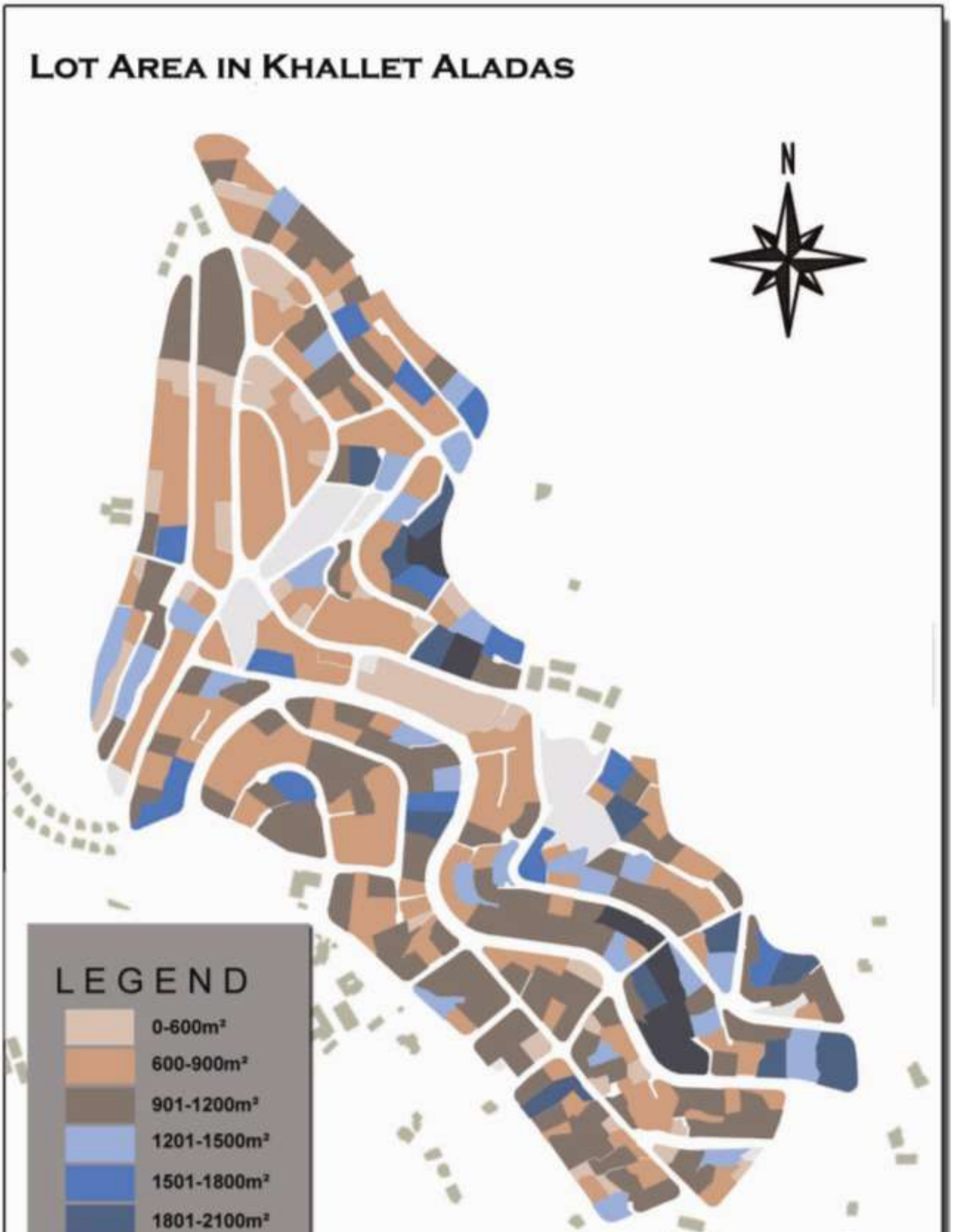
Scale 1:100





Section B-B


HOUSING BUILDINGS' ORIENTATION IN KHALLET ALADAS
N
LEGEND
0-18°
19-36°
37-54°
55-72°
73-89°
90°
Public areas

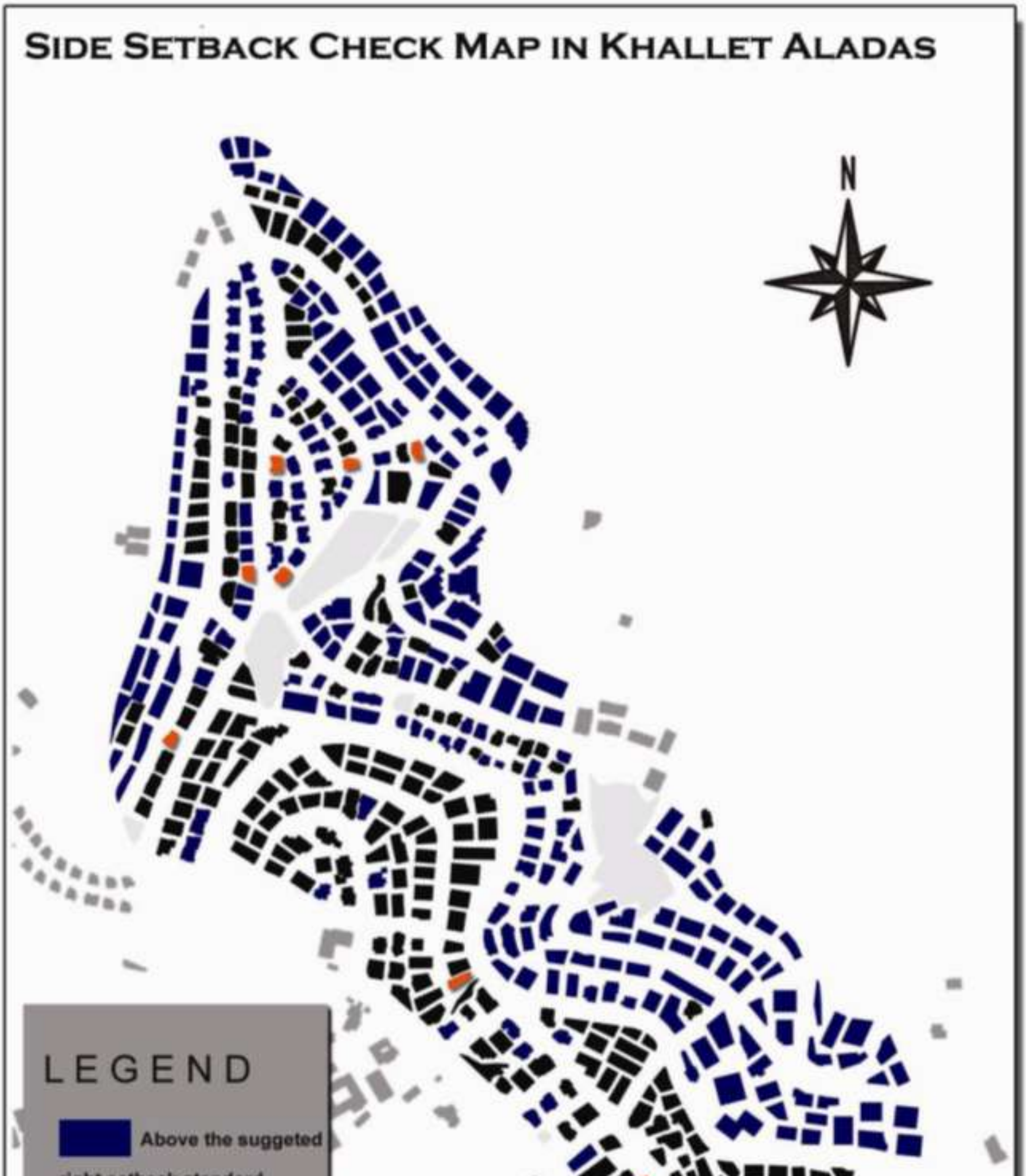

LOT AREA IN KHALLET ALADAS
N
LEGEND
0-600m²
600-900m²
901-1200m²
1201-1500m²
1501-1800m²
1801-2100m²

LOT AREA/ HOUSING UNIT CHECK MAP IN KHALLET-ALADAS

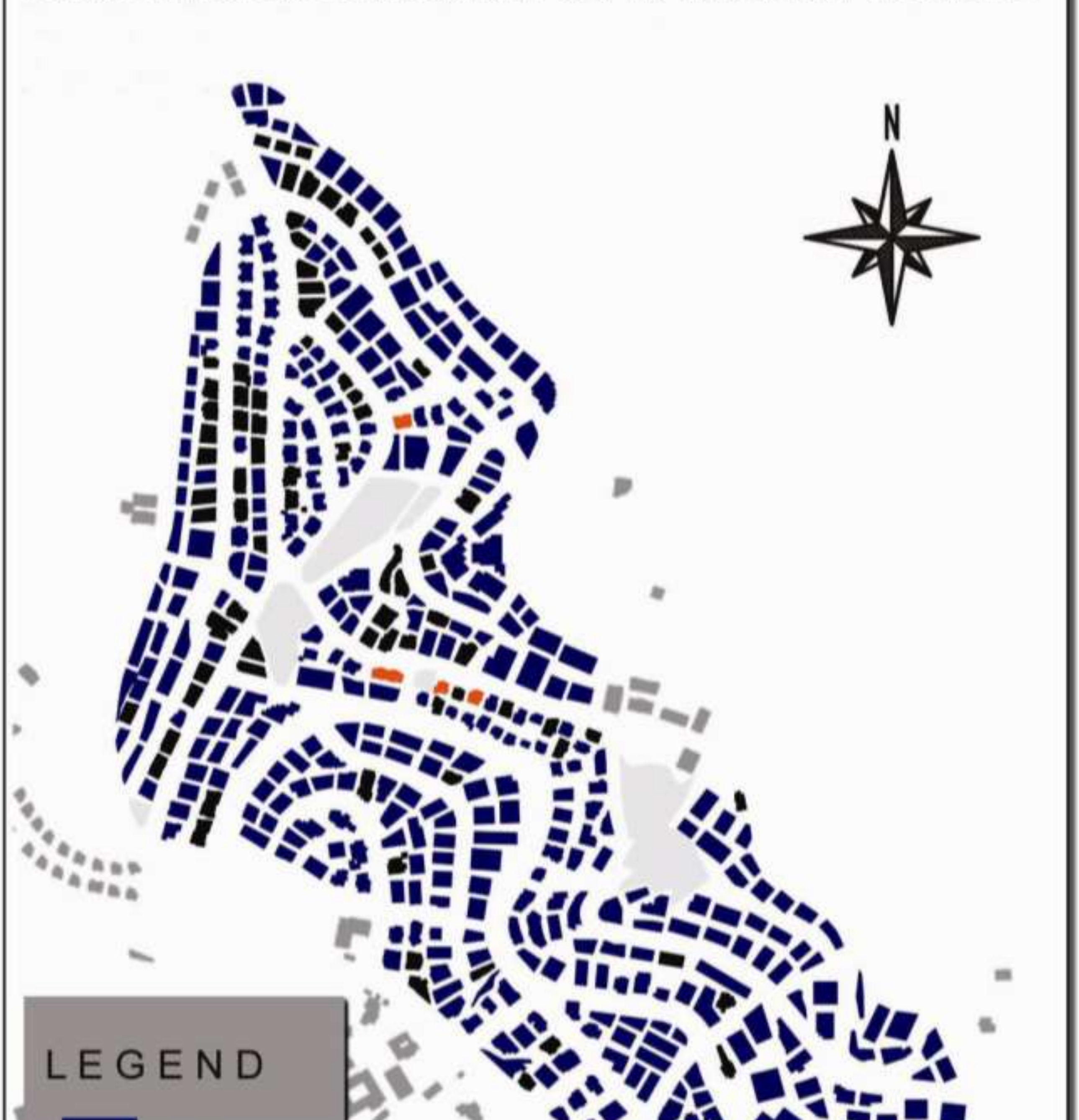


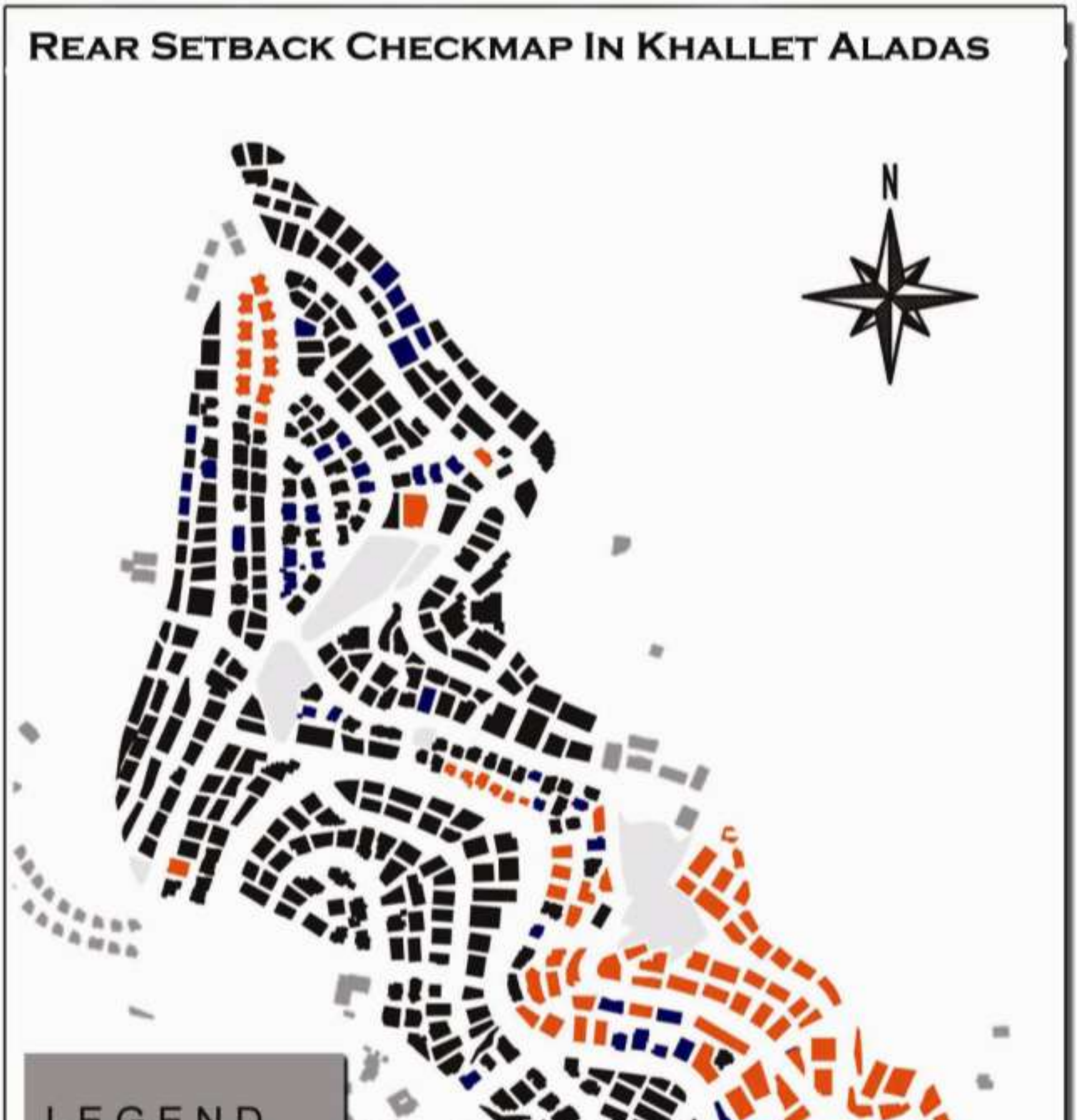
FRONT SETBACK CHECK MAP IN KHALLET ALADAS




SIDE SETBACK CHECK MAP IN KHALLET ALADAS
N
LEGEND
Above the suggeted

SIDE SETBACK CHECKMAP (2) IN KHALLET ALADAS




REAR SETBACK CHECKMAP IN KHALLET ALADAS
N

Analysis of social services in Khallet Aladas

This part of analysis investigates housing quality in term of services provided to Khallet Aladas's people. The services are analyzed in two levels: macro level (city level), and micro level (neighborhood level). Micro level includes indicators as follow: education (Kindergarten, elementary school), religious facilities, social facilities, cultural facilities, other facilities (post office, police office, and fire station), and open green spaces. The discussion of each criterion will be discussed into two parts: the first is the area of the service. The second is the walking distance of housing unit from the service.

Educational services

Field survey shows that educational services are limited to a kindergarten and a secondary school. On the one hand, kindergarten is in the ground level of housing buildings and it is about 0.0294Ha (Ramallah's map, 2012). On the other hand, St. George School is an elementary and secondary school of 4.8Ha area. It is very close to the boundaries of the study area. But, it is privately owned and not affordable to all students of the study area (Directorate of Education, 2012). Moreover, data collections show that there are 19 elementary and secondary schools in Ramallah (Directorate of education, 2012). They are classified as follow: eight elementary schools, five secondary schools, and six elementary and secondary schools.

The education services will be analyzed based on section 5.5. For kindergarten, the analysis process reveals present deficiency (1.14 Ha) in kindergarten and it will be 3.2 Ha in 2025 area. 500m from existing kindergarten, only 53% of

housing units will be served by the year 2025, as shown figure (6-17). See appendix (16)

For elementary schools, the analysis process indicates present deficiency (0.69) and it will be 3.56 Ha by 2025. The optimum distance 1000m from the closest elementary school (Hawari Bumedian) will be approximately serving 18.6% of housing units by the year 2025, as shown in figure (6-18). See appendix (17)

For secondary schools, the analysis process illustrates current surplus 12.11H and it will be 9.41 Ha in 2025 area, see appendix (18). Approximately, 48.3% and 40.4% of surveyed will fall in deficit zone of girls' and boys' schools respectively by the year 2025, as shown figure (6-19) and (6-20).It is important to note that the local schools are considered in walking distance check maps, since it is affordable to all students.

Health services

The field survey shows that there is no health center in the study area or in the surrounding neighbors. Different medical centers are located in or around the center of Ramallah city, as shown later in figures (6-21) and (6-22). Data collection shows that Health centers and their capacities are mounted to four hospitals and one complex of clinics. The hospitals are presented in appendix (19).

Based on section4.5, comparing to the exiting area of clinics complex (0.36Ha), there is 4.87Ha deficiency at present (2013), It is expected to increase to be 0.37Ha by the year 2025. The study area is located out of the buffer zone of clinics complex as shown in figure (6-21). See appendix (20).

For both general and specialist hospitals, 212 beds are required by the year 2025. The expected population of 2025 (41,696 persons) will require 80 additional beds, giving a shortage of 49 beds. See appendix (21).

However, Palestine Medical Complex is serving Albireh city too, which could cause a higher shortage of required beds. Moreover, the figure (6-22) is evident that 19.5% of surveyed housing units will be in 2000m catchment area of specialist hospital.

Shops

Field survey shows that a limited portion of the ground level in two residential buildings is occupied by two small shops. They are available to serve daily needs. Since there are no weekly shops within the study area, people tend to visit shopping malls in surrounding areas, which are: Bravo center (0.088Ha), gardens (0.019Ha), and supermarket in gas station 0.034Ha. Moreover, there are lands for future commercial use as shown in figure (6-23).

The analysis shows that the existing daily shops facilities are enough to population in 2013, and there will be a deficiency in daily shops areas in 2025, which is about 0.0029Ha. Moreover, from the location of daily shops, 95.6% of housing units will be served by the year 2025, as shown in figure (6-23). See appendix (22).

Results show a deficiency of 0.12 Ha in 2013 of weekly supermarkets. The location of weekly shops is serving all housing units of the year 2025, as shown in figure (6-24). It is important to note that weekly shops are serving for daily needs of population. See appendix (23)

Land use shows additional areas for future commercial developments. Commercial lands are enough to serve the study area giving surplus of 10.17Ha by the year 2025. Present deficiency can be referred to the rapid residential development comparing to commercial constructions.

Religious services

Field survey shows that there is only one mosque (Al-Taqwa) in the study area, which is built on residential land. Its area is about 0.14Ha. There are no churches in the study area or in the surrounding neighborhoods. All churches are closer to the center of the city. The analysis results show deficiencies of both mosques' and churches' areas by the year 2025 of -0.018Ha and 0.016Ha respectively. See appendix (24)

However, it is important to note that Al-Taqwa Mosque is also serving surrounding areas. On the one hand, 800m catchment area of Al-Taqwa mosque 78.2% of surveyed housing units will be served by the year 2025. On the other hand, all study area is not covered by any of existing churches in Ramallah as shown in figure (6-24).

Cafes

Field survey shows that there are two cafes within the study area; they are constructed on residential lands. The first cafe is Alreef which is 0.078Ha. The second one is Henny Benny which is 0.015Ha. In addition to that, two close cafes of surrounding areas are included to cover populations' needs of the study area. They are: The vine (0.042Ha), and Values cafes (0.076Ha).

The analysis reveals deficiencies in cafes. It is estimated to increase to 0.38Ha by the year 2025. See appendix (25). However, it is important to note that those two cafes are also serving surrounding areas since plus there area cafes in surrounding areas which are close enough to serve the study area. The two cafes in the study area are serving all surveyed housing units by the year 2025 as shown in figure (6-25). Khallet Aladas witnesses the phenomena of transforming some buildings to cafes and restaurant. It changes the image of Khallet Aladas, and increases street congestions and the number of required parking.

Cultural services

The library of Ramallah is the only governmental cultural center that serves the city. Results show that Ramallah's library is not serving any housing units of the study area, see appendix (26). Moreover, there is a high deficiency in a library's area. The deficiency equals 0.12Ha in 2013 and 0.18Ha in 2025. The location and the area of existing library do not consider future urban growth, which explains the high deficiency. It served 3.7% of surveyed housing units, as shown in figure (6-26).

The Ramallah's map shows that there are four youth centers. However, none of them is in the study area. The closest youth center to the study area is Sharek center. It is serving about 39.4% of surveyed housing units in the study area as shown in figure (6-27).

Other services (Post office, police station, and fire station)

Data collection reveals that Ramallah includes:

1. One post office (0.04Ha) in the center of the city. It serves the total population of the city.
2. Four police stations (0.087) over different areas. The total area of police station is about 0.61ha. One of police station has an area of 0.69Ha. It also serves the total population. However, there is no fire station in Ramallah city.

The results reveal that there will be a surplus of 0.04Ha in police station services by the year 2025, see appendix (27). However, there will be a deficiency of 0.38 in post office by the year 2025. Police station is serving all surveyed housing units in the study area as shown in figure(6-28), while 24.4 of the study area is falling within optimum distance zone of post office as shown in figure (6-29).

Public transportation station

Field survey and Ramallah facilities' map show that there are two public taxi stations which serve the study area. One of them is within the study area boundaries. The other is very close to the boundaries of the study area in front of Khallet Aladas College.

If we consider 500m distance zone of public transportation station, the results- as presented in figure (6-30)- show that the two taxi's stations will serve 78.9% of surveyed housing units in the study area by the year 2025. However, the taxi's services are not regular or available over the day. See appendix (28).

Public transportation system is in general a weak system in Palestine. It is resulted in high use of private cars to meet people's daily needs. Moreover, it raised street congestion problems and environmental problems

Open green spaces

The master plan of Ramallah city shows that there is only one small garden within the study area, which is Alzaitona garden. It has about 0.05Ha area. It has outdoor playing games, which is neglected. Ramallah's master plan shows many lands determined for open spaces land use distributed throughout city parts. See appendix (29).

The analysis introduces a high deficiency in open green spaces required in both city and neighborhood levels see appendix (30). Areas' deficits are about 12.57Ha at neighborhood level, and 20.8 Ha at the city level. If 1000m catchment area is considered for district parks, 96.4% of surveyed housing units will be served by the year 2025 as shown in figure (6-31). Moreover, results also emphasize a deficiency in city level. About 63.7% of housing units will fall out of the optimum catchment area of city parks as shown in figure (6-32). High deficiencies of opens spaces can be referred to the high price of lands in Ramallah in general and high number of investments and apartments construction to maximize the profits. High deficiencies of opens spaces can be referred to the high price of lands and the lack of public ownership (An architect working at Ramallah's Municipality, 2013).

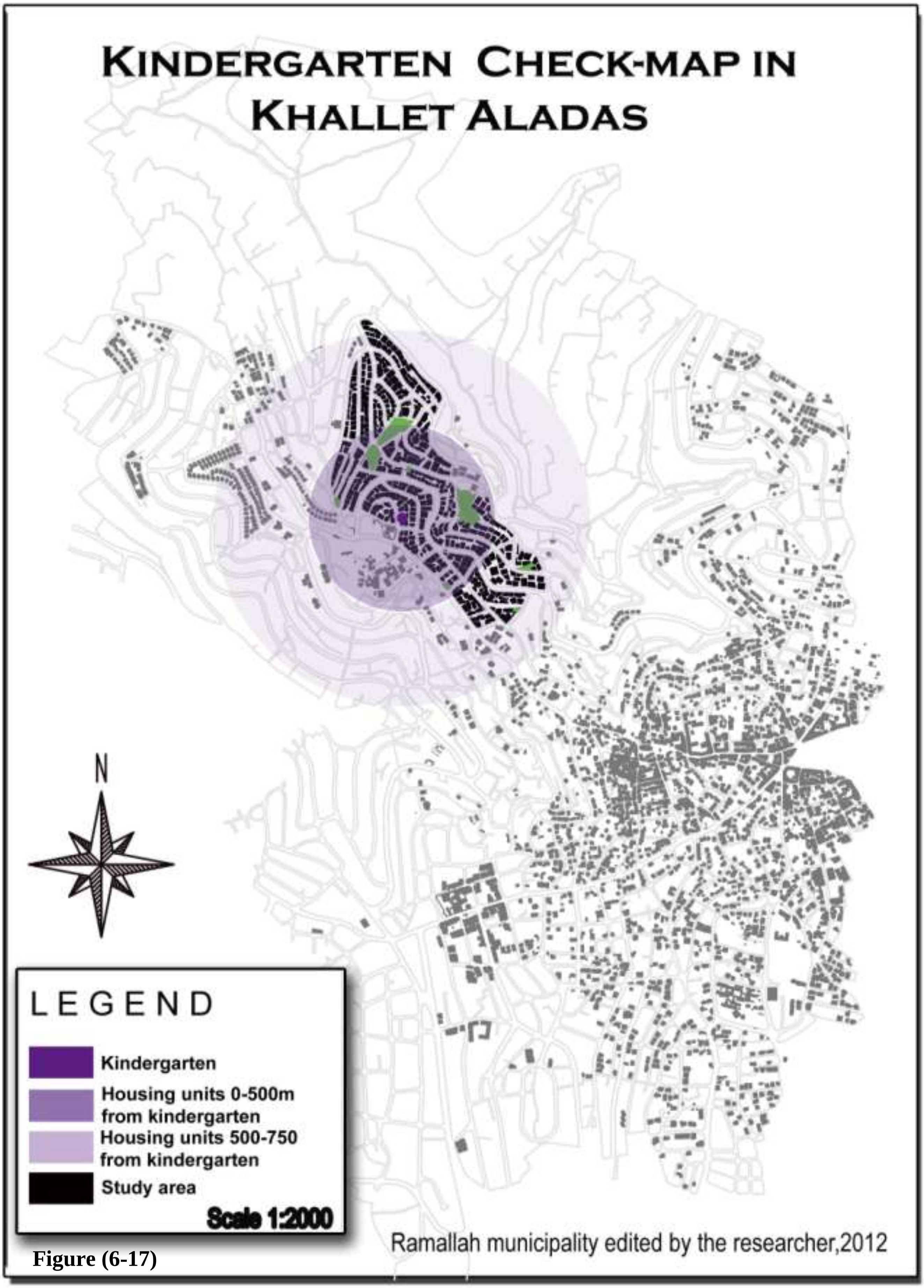
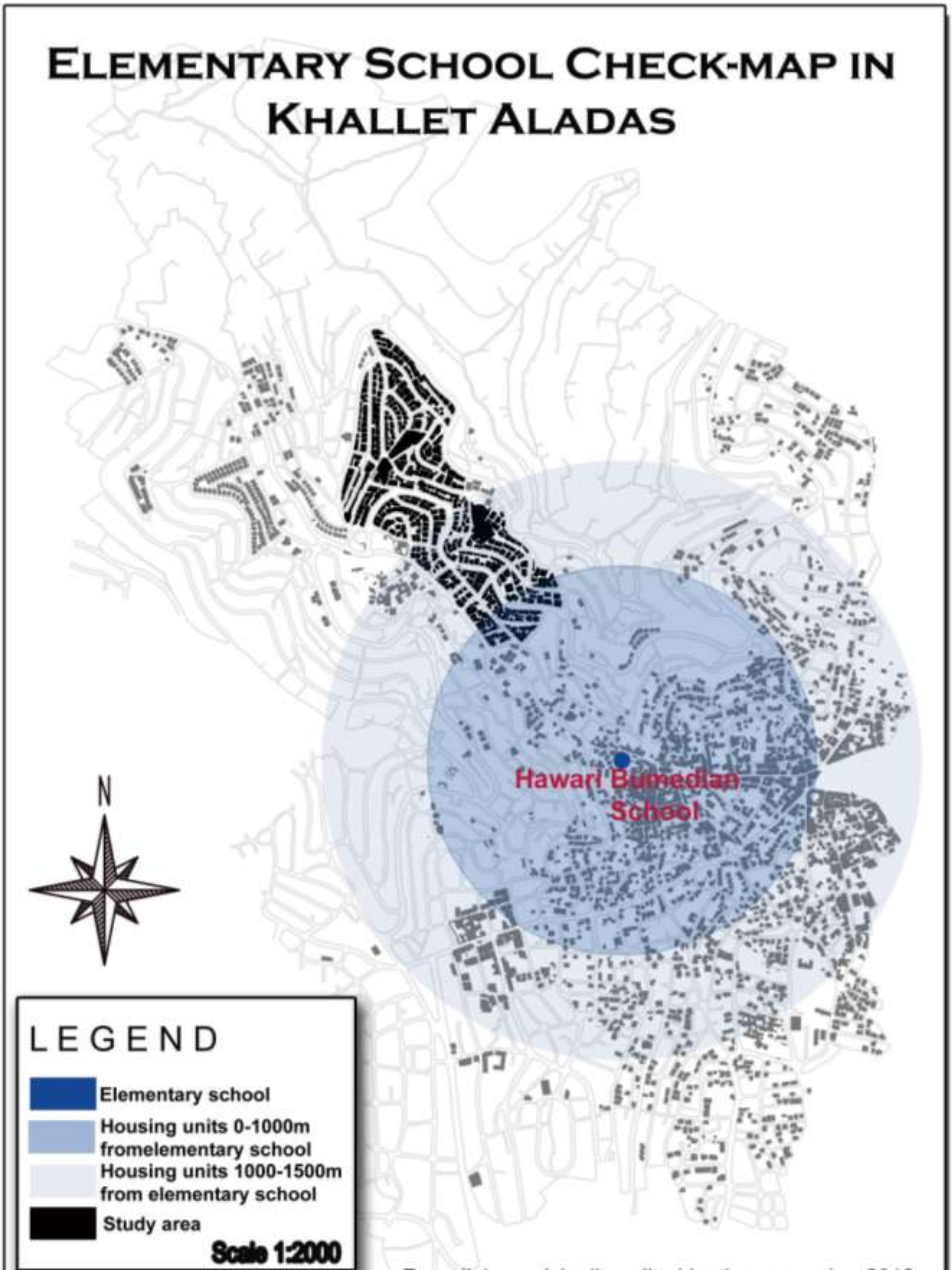
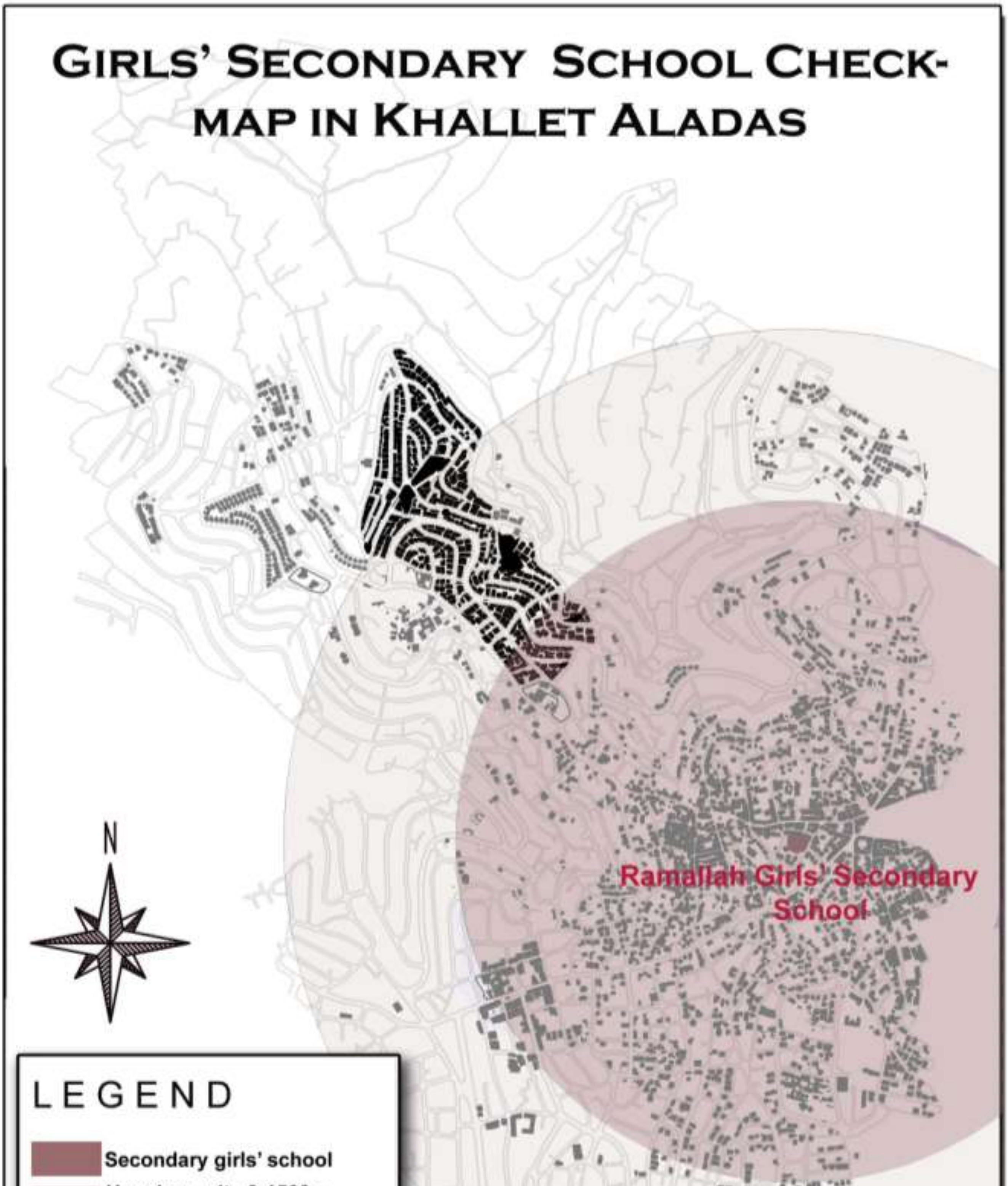
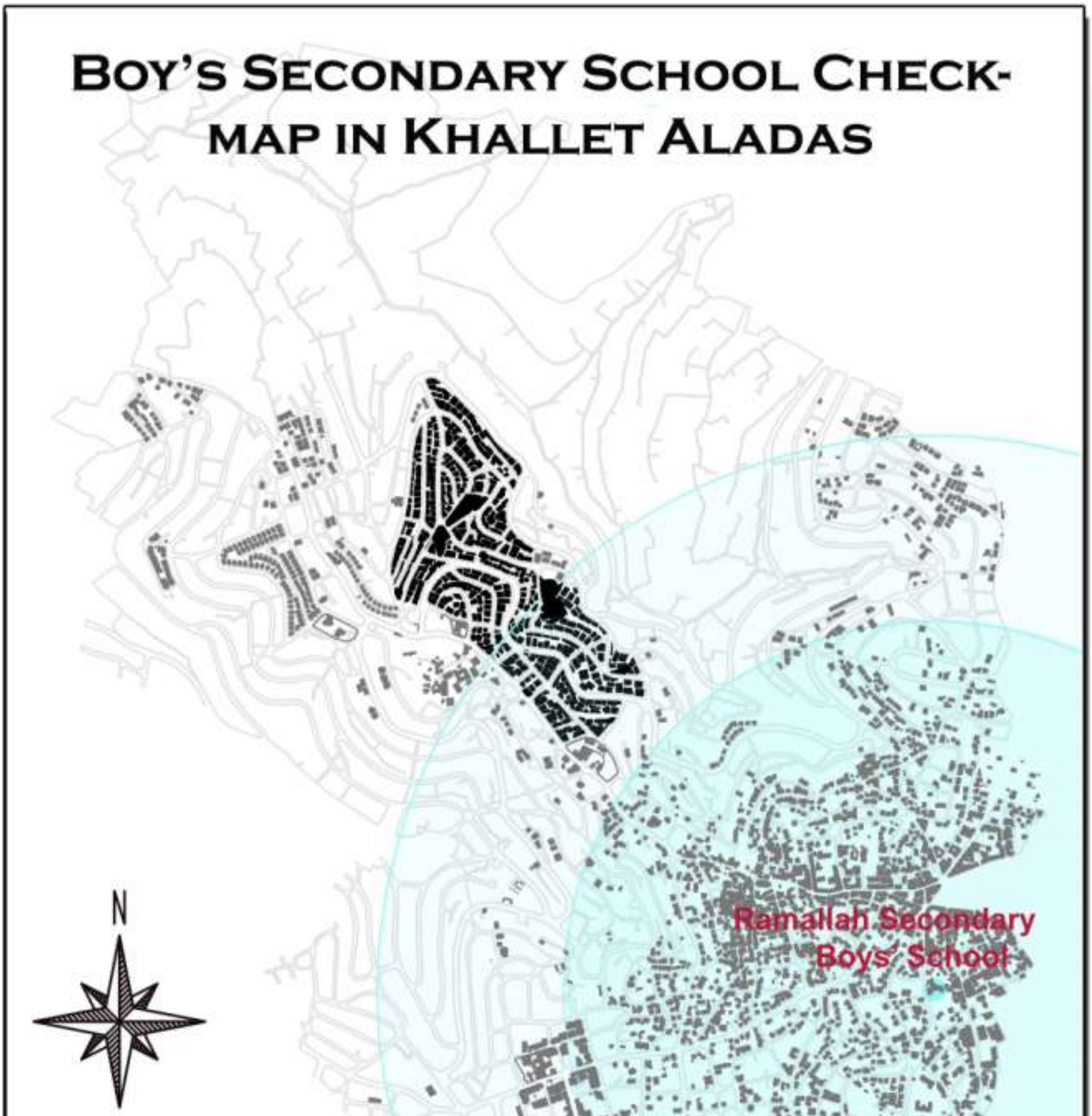
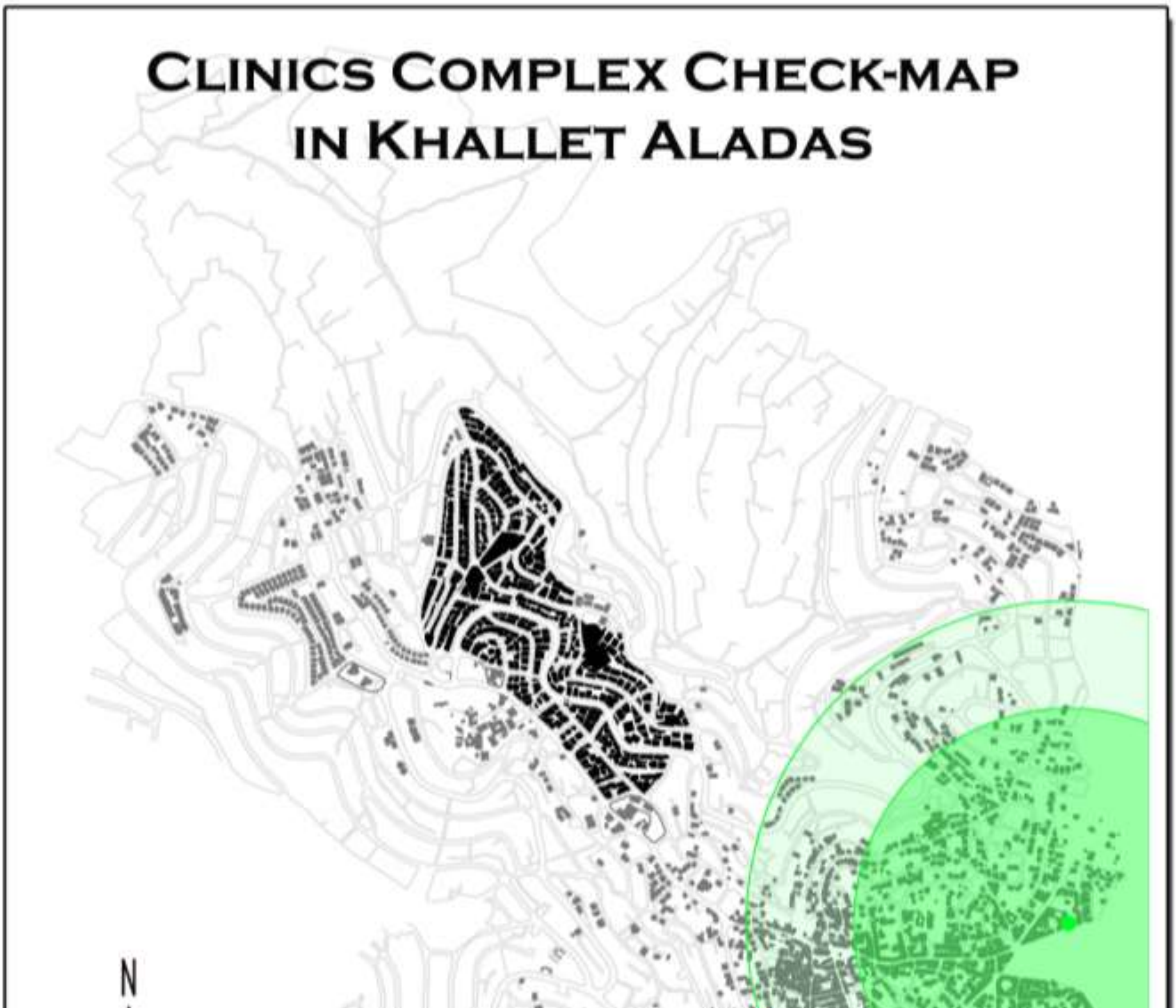

KINDERGARTEN CHECK-MAP IN
KHALLET ALADAS
N
LEGEND
Kindergarten
Housing units 0-500m
from kindergarten
Housing units 500-750
from kindergarten
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

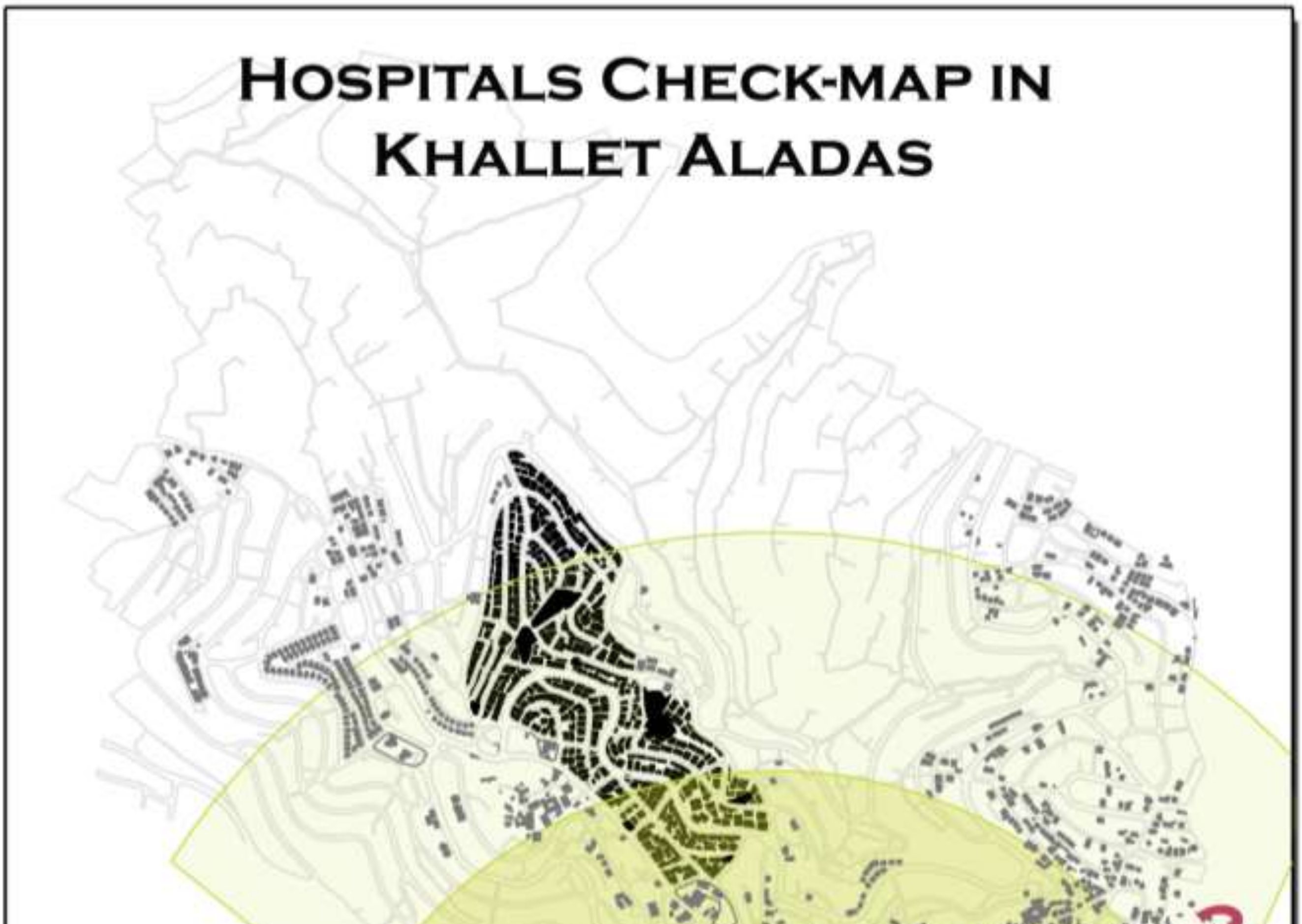
Figure (6-17)


ELEMENTARY SCHOOL CHECK-MAP IN KHALLET ALADAS
N
Hawari Bumedian School
LEGEND
Elementary school
Housing units 0-1000m fromelementary school
Housing units 1000-1500m from elementary school
Study area
Scale 1:2000


GIRLS' SECONDARY SCHOOL CHECK-MAP IN KHALLET ALADAS
N
Ramallah Girls' Secondary School
LEGEND
Secondary girls' school


Boy's Secondary School Check-map in Khallet Aladas
N
Ramallah Secondary
Boys' School


CLINICS COMPLEX CHECK-MAP
IN KHALLET ALADAS
N


Hospitals Check-map in
Khallet Aladas


Daily & Weekly Shops Check-map
In Khallet Aladas
Daily shops
Gardens

6

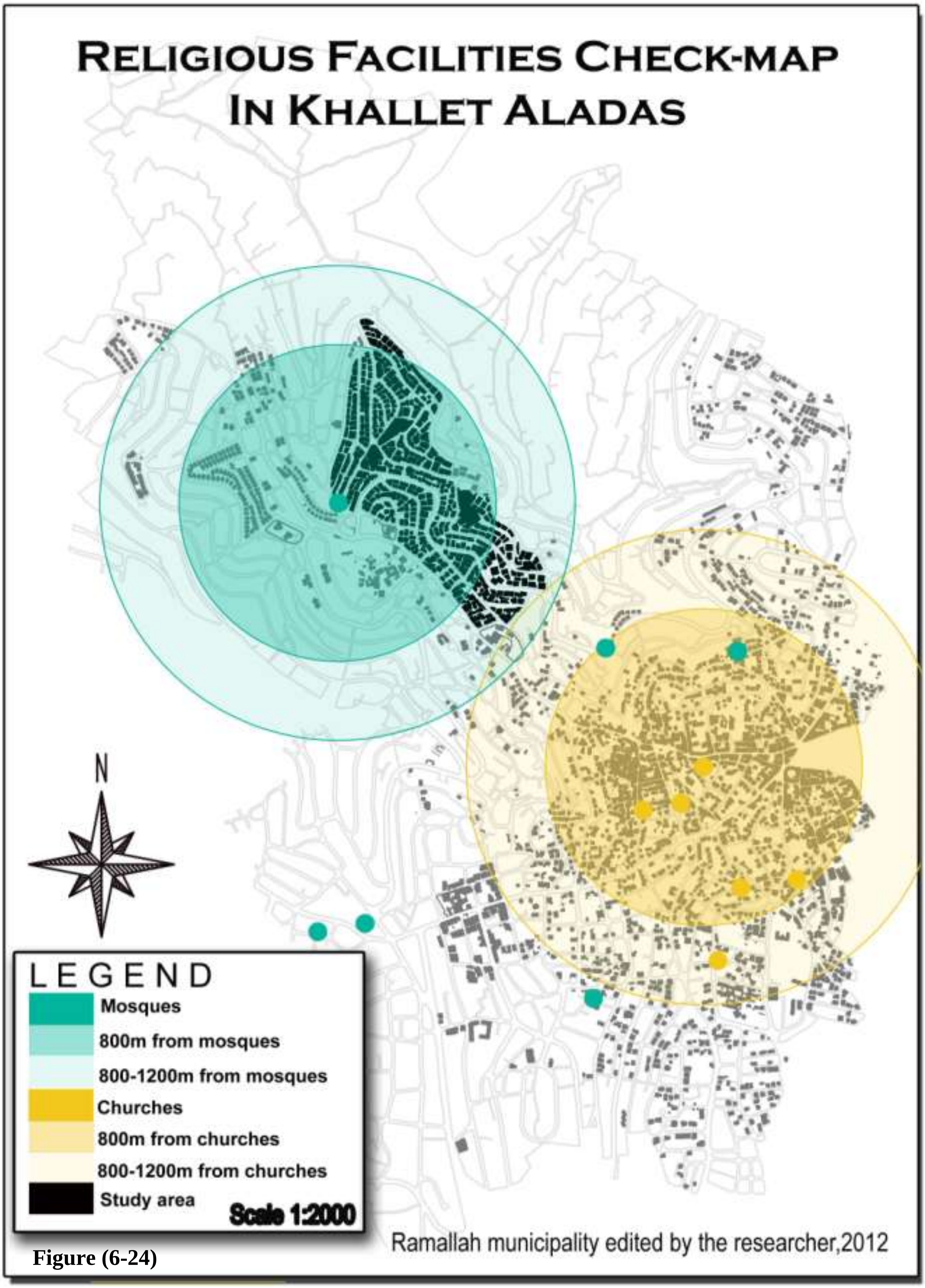

RELIGIOUS FACILITIES CHECK-MAP
IN KHALLET ALADAS
N
LEGEND
Mosques
800m from mosques
800-1200m from mosques
Churches
800m from churches
800-1200m from churches
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-24)

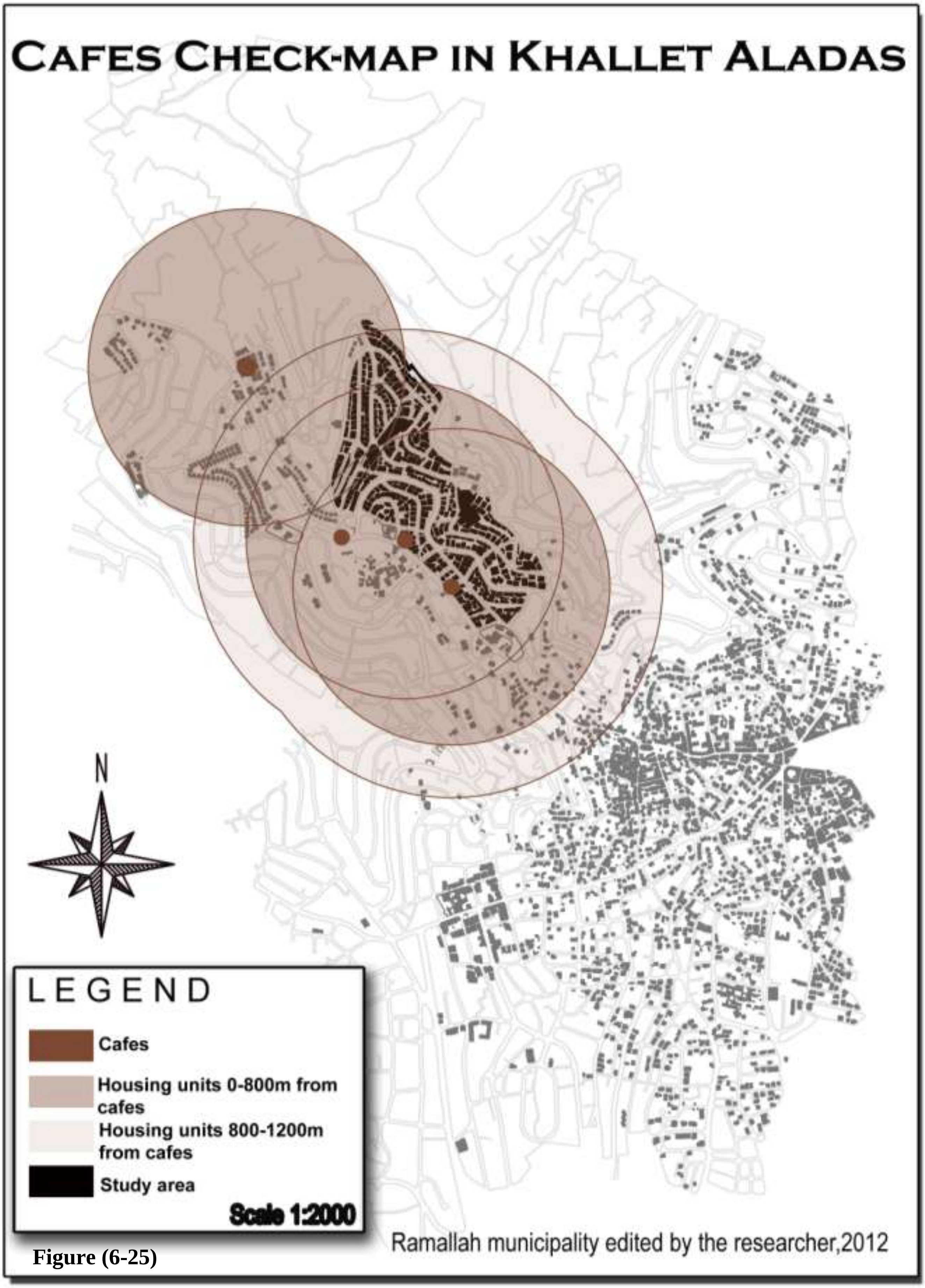

CAFES CHECK-MAP IN KHALLET ALADAS
N
LEGEND
Cafes
Housing units 0-800m from cafes
Housing units 800-1200m from cafes
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-25)

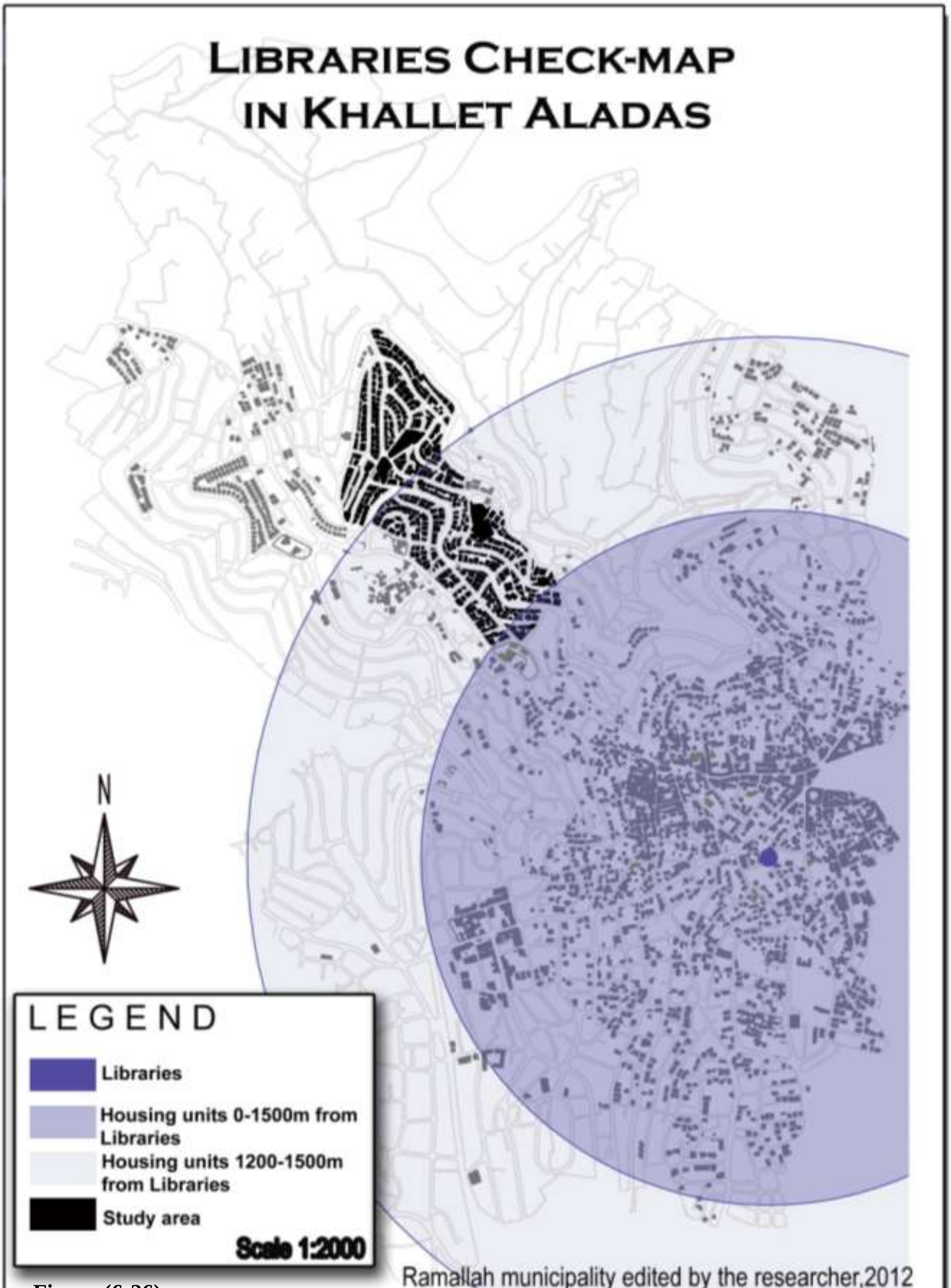

LIBRARIES CHECK-MAP
IN KHALLET ALADAS
N
LEGEND
Libraries
Housing units 0-1500m from Libraries
Housing units 1200-1500m from Libraries
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-26)

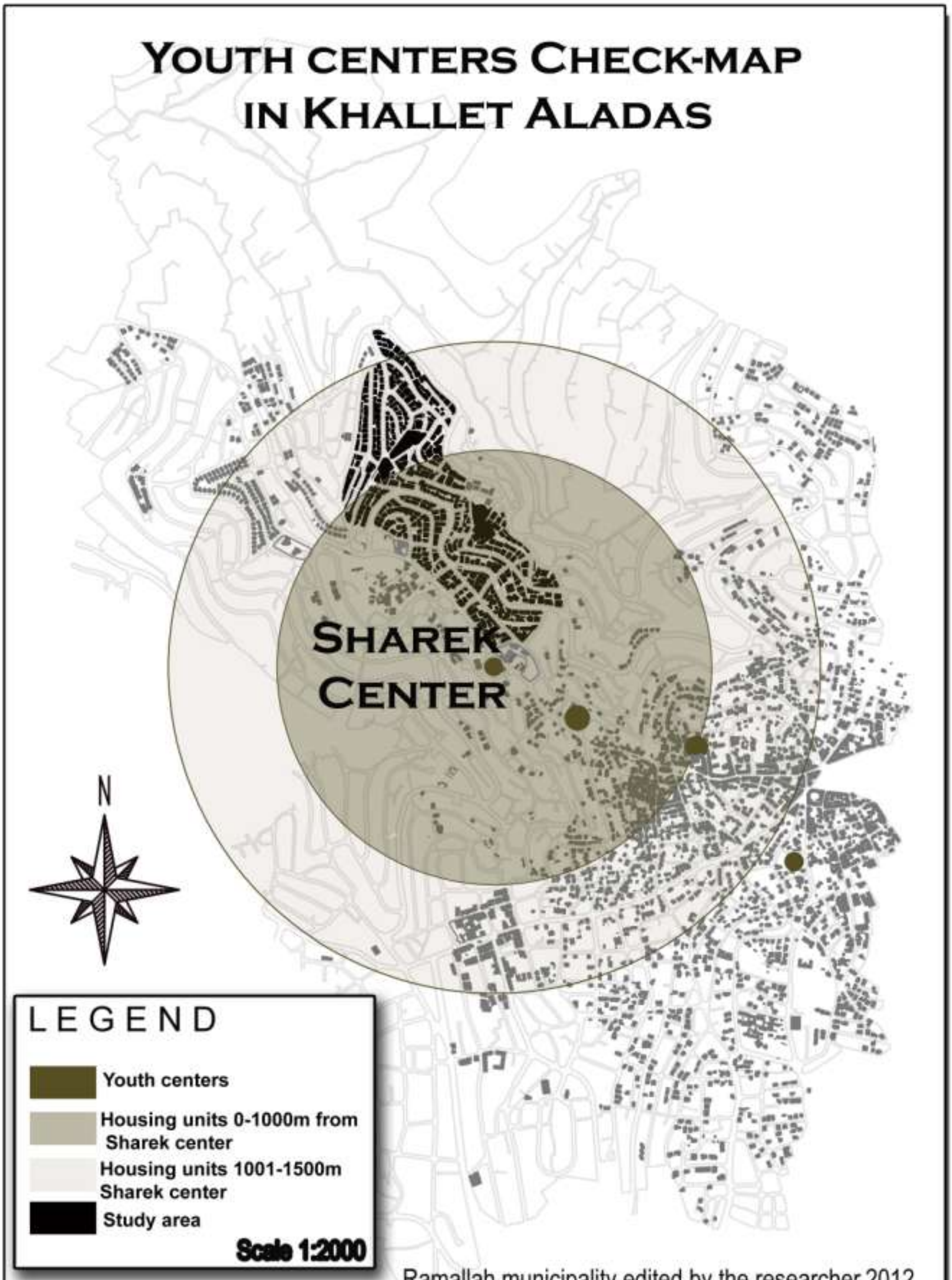

YOUTH CENTERS CHECK-MAP
IN KHALLET ALADAS
SHAREK
CENTER
N
LEGEND
Youth centers
Housing units 0-1000m from Sharek center
Housing units 1001-1500m Sharek center
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-27)

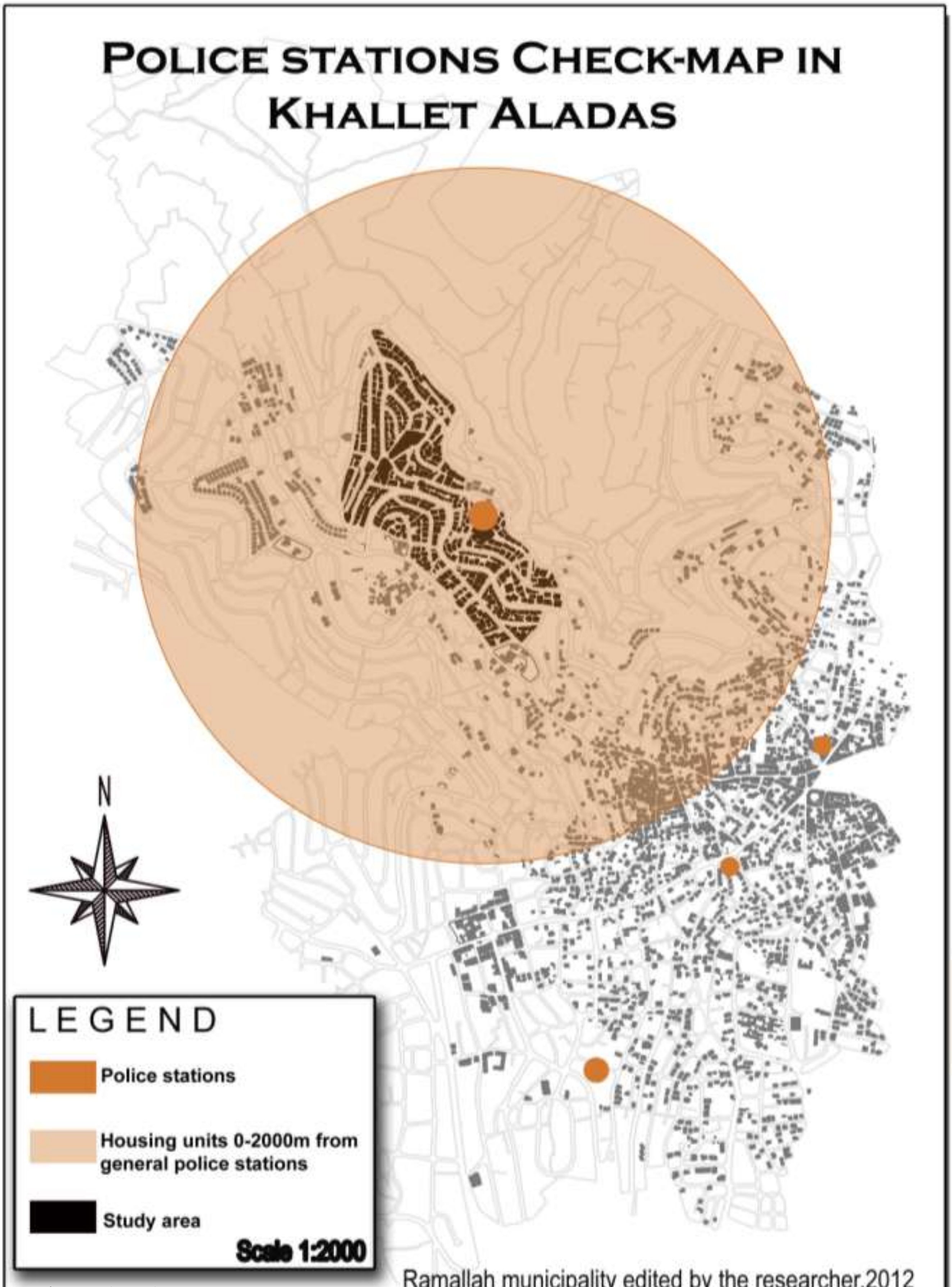

POLICE STATIONS CHECK-MAP IN
KHALLET ALADAS
N
LEGEND
Police stations
Housing units 0-2000m from general police stations
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-28)

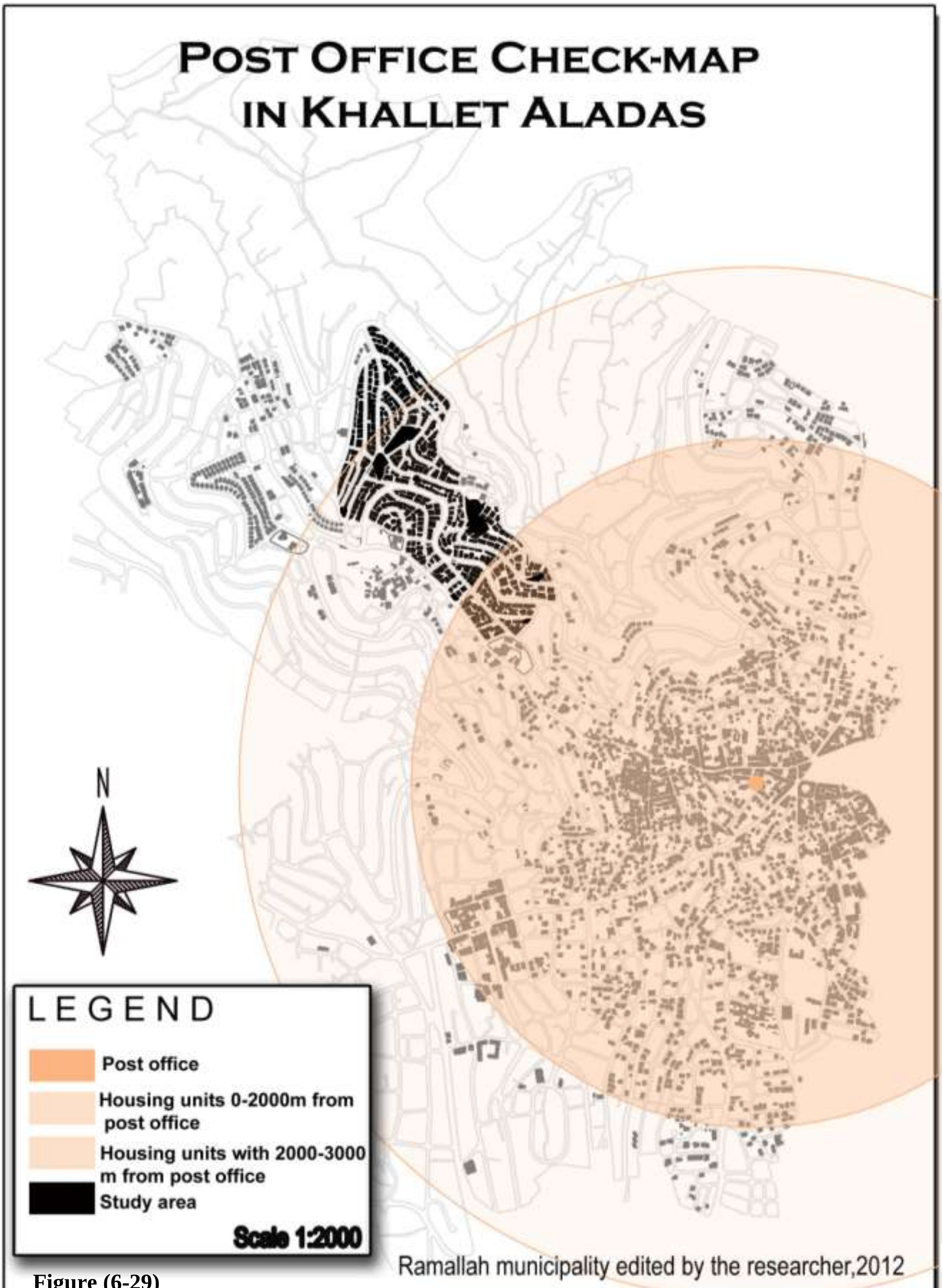

POST OFFICE CHECK-MAP
IN KHALLET ALADAS
N
LEGEND
Post office
Housing units 0-2000m from post office
Housing units with 2000-3000 m from post office
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-29)

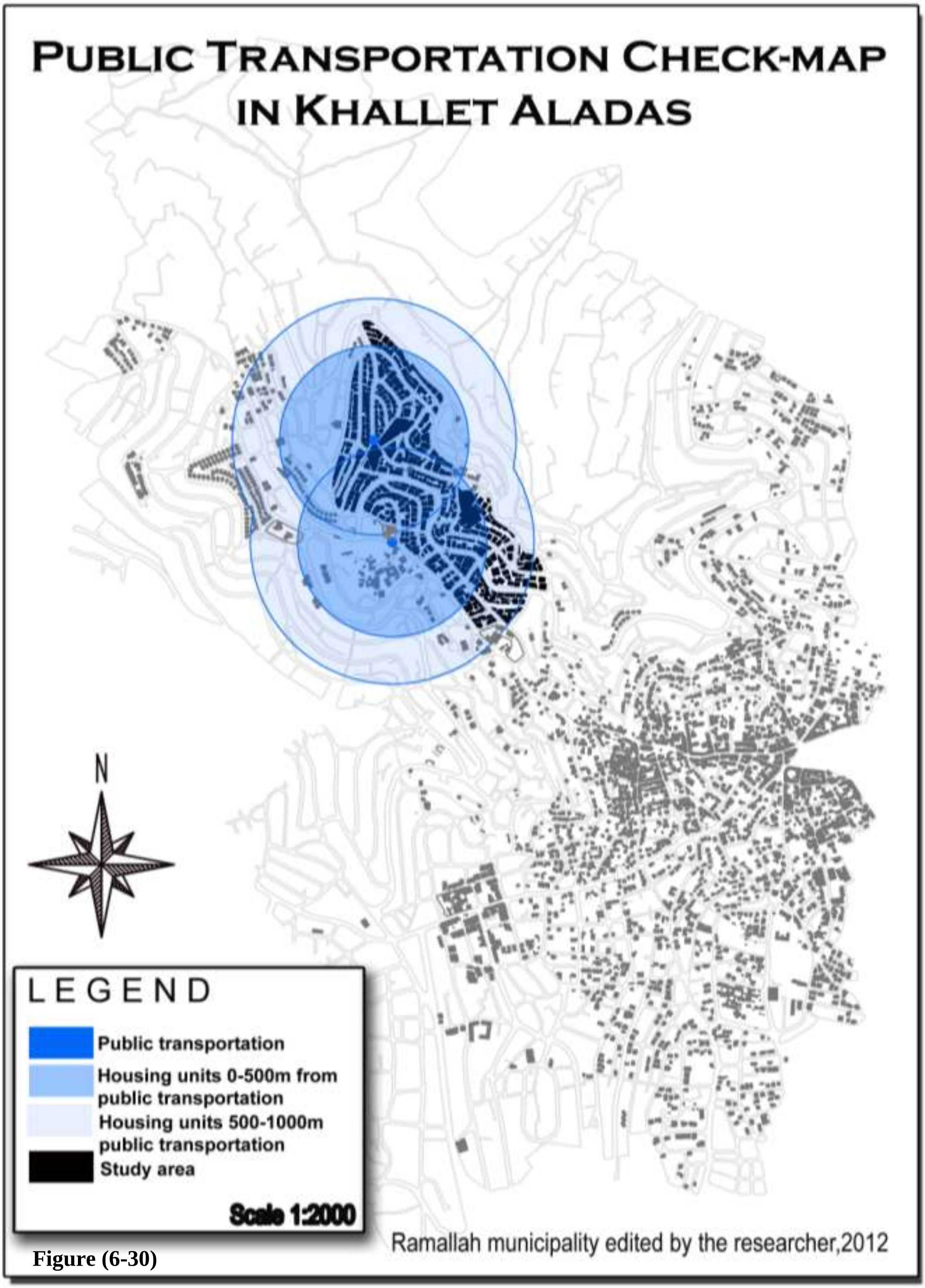

PUBLIC TRANSPORTATION CHECK-MAP IN KHALLET ALADAS
N
LEGEND
Public transportation
Housing units 0-500m from public transportation
Housing units 500-1000m public transportation
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-30)

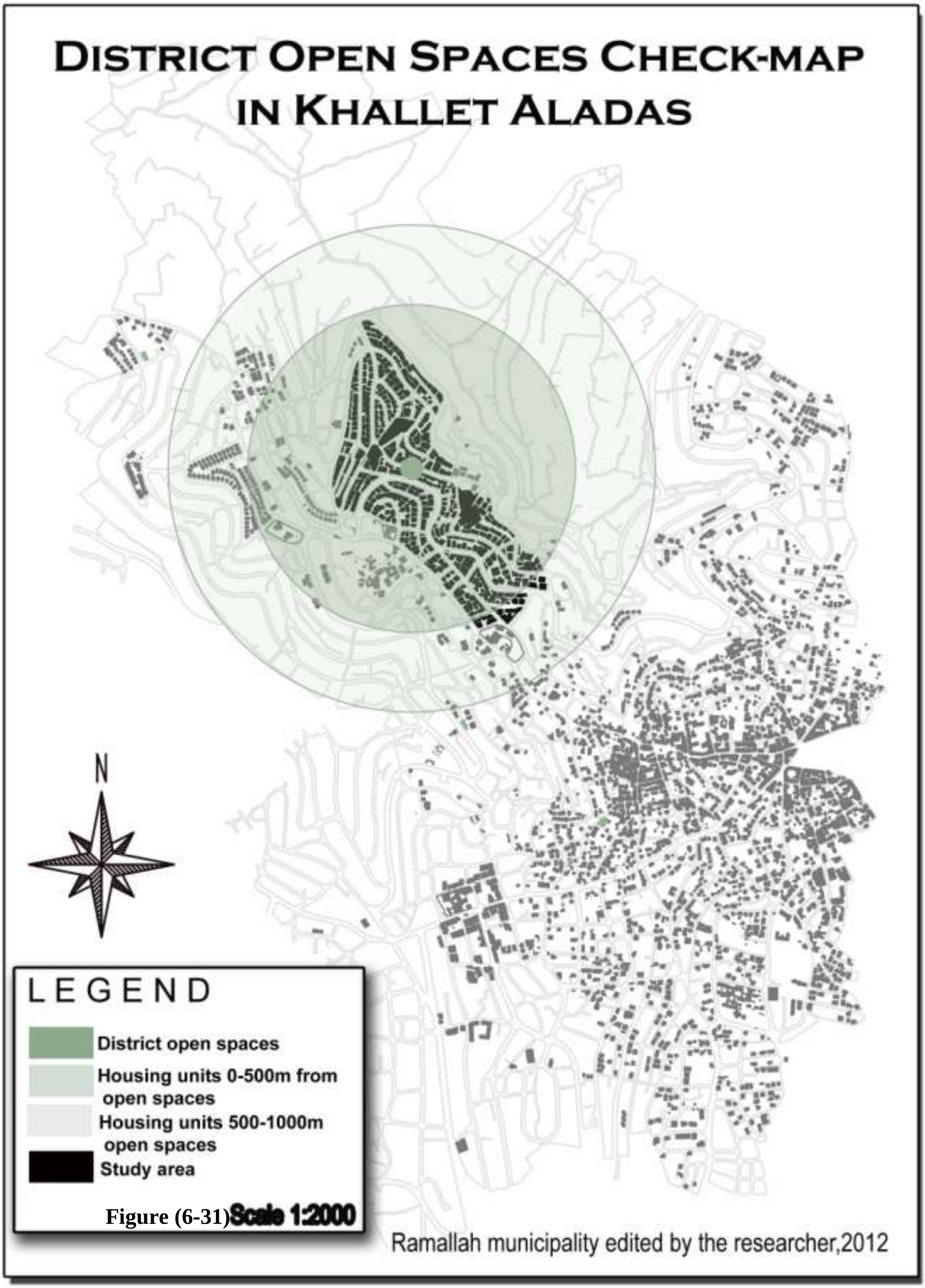

DISTRICT OPEN SPACES CHECK-MAP
IN KHALLET ALADAS
N
LEGEND
District open spaces
Housing units 0-500m from open spaces
Housing units 500-1000m open spaces
Study area
Scale 1:2000
Ramallah municipality edited by the researcher,2012

Figure (6-31)

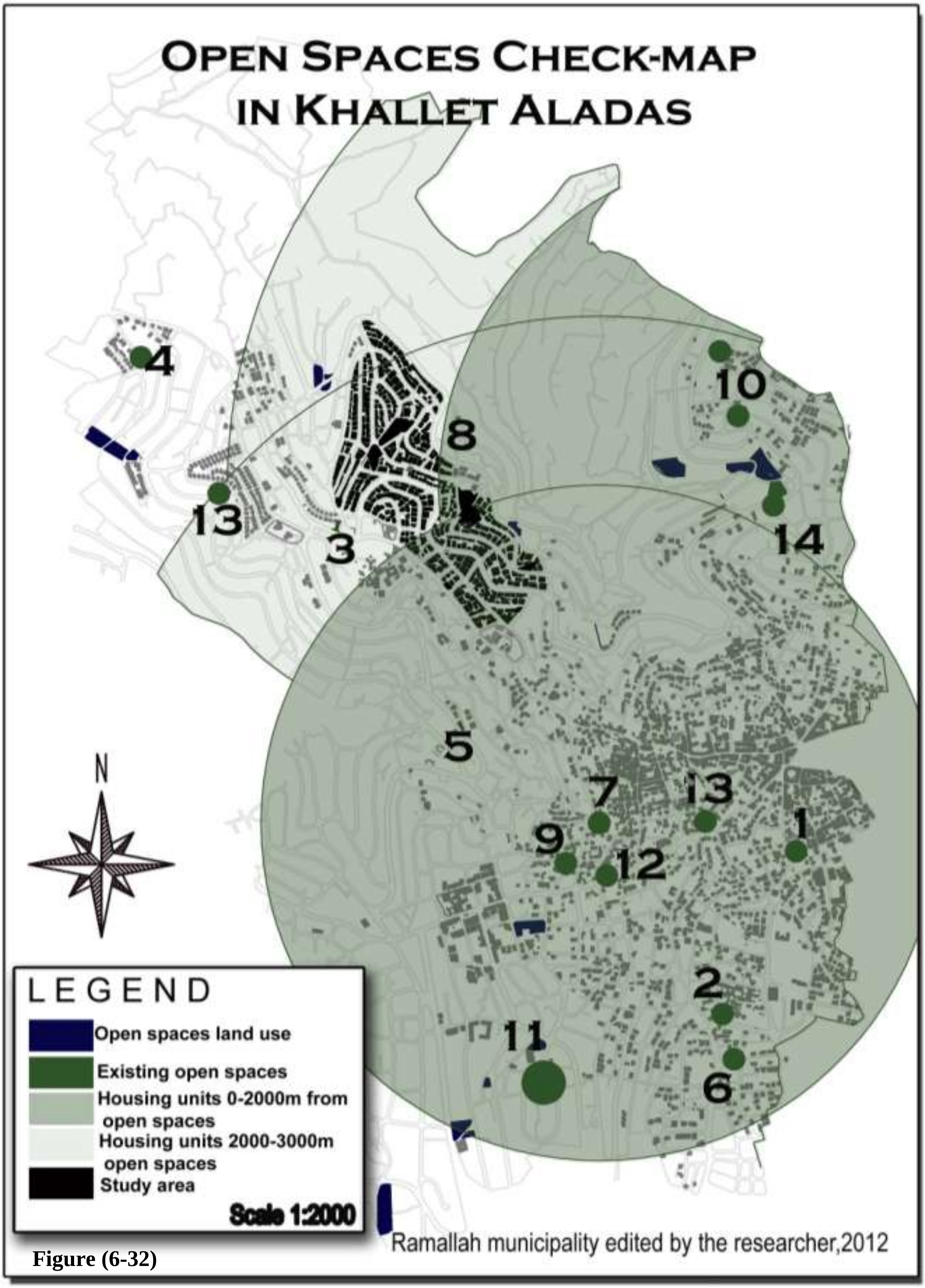

OPEN SPACES CHECK-MAP
IN KHALLET ALADAS
4
10
8
13
3
14
5
N
7
13
1
9
12
LEGEND
Open spaces land use
Existing open spaces
Housing units 0-2000m from open spaces
Housing units 2000-3000m open spaces
Study area
Scale 1:2000
2
11
6
Ramallah municipality edited by the researcher,2012

Figure (6-32)

The data representation and analysis: the case of Almakhfia

This section presents housing quality indicators in term of spatial qualities including: housing types, housing density, Housing height/lot coverage, housing building height/ street width, orientation, and setbacks. Each indicator will go through data collected from field survey, the suggested optimum score, and finally the percentage of housing buildings that are equal, above or below the suggested score.

Types of housing units

Due to housing classification of Kevin Lynch and Consultants Llewellyn Davies presented in section 3.6, the field survey found three types of housing units in Almakhfia as well as in Khallet Aladas which are: single housing (SH), attached Housing (AH), and flats or apartments (RB)

Figure (6-33) shows an example of each housing type. The most predominant type is flat or apartment (RB) which presents



Figure (6-33): Single housing unit, attached housing unit, and apartments in Almakhfia. (The researcher, 2012).

62.1% in existing situation and 77.3% after future urban growth.

Housing density in Almakhfia

The overall density is about 78Hu/ha. Based on the information presented in section 3.6, Almakhfia is considered as a high housing density area. It is important to state that the high density in Almakhfia refers to the same reasons found in Khallet Aladas.

Housing height/ lot coverage (H/C)

On the one hand, the field survey introduce the number of storeys in each surveyed housing type as following: single housing, 1 storey (22.5%), 2 storeys (53.9%), 3 storeys (21.3%), and 4 storeys (2.3%), Attached housing, 2 storeys (2.1%), 3 storeys (52.1%), 4-5 storeys (45.8%), flats, 1-3 storeys(9.1%), 4-6 storeys(77.8%), 7-9 storeys (10.0%), and 10-12 storeys(3.1%),see figure(6-34).

On the other hand, the different ranges of lot coverage percentage of surveyed housing buildings are presented in figure (6-35).the field survey shows that the coverage percentage of each housing type as following: (29-68%) for single housing, and (21-74%) for attached housing and flats.

The analysis reveals that 13.0% of surveyed housing units meet the suggested score, the percentage of each surveyed housing type that have the minimum one is presented figure (6-36). See appendix (31).

Housing height vs. street width

Housing heights obtained from field survey were discussed in previous section

(6.2.1). However, street widths are obtained from Nablus map. Data collection shows that 96.7% of housing buildings is served by 10-12m street where housing heights ranges from 3m to 39m as presented figure (6-37). See appendix (32).

Based on section 5.6, the analysis reveals that only 28.1% of surveyed housing buildings meet the suggested standard as shown in figure (6-38). It is important to note that different housing heights of both street sides have negative effects on

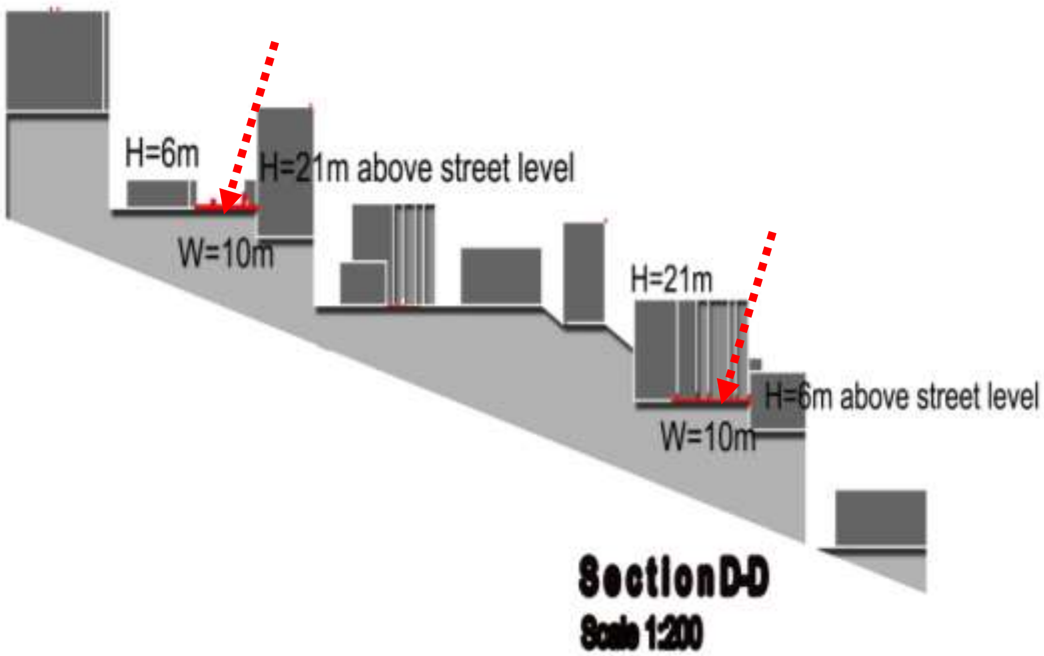


Figure (6-39): The imbalance sense created by different housing heights. (The researcher, 2012)

Orientation

Orientations of housing buildings are easily measured from Almakhfia's map. As in the first case, the angle between the short axis of each housing building and North -South axis is chosen to measure the orientations. See appendix (33).

The best building orientation in Palestine is East-West, which achieved if the

suggested angle equals 0°. As a result of the analysis, a percentage (43.4%) of housing buildings does not meet the optimum orientation as shown in figure (6-40). It is also important to note that the orientations of housing buildings in Almakhfia are predetermined by the lot shape and contour lines. See appendix (33).

5.2.1 Lot area

The number of units of each housing buildings were collected through field survey, while lot areas in the study area are collected from Nablus's map as shown in figure (6-40). See appendix (34)

Results show that 52.8% of single housing and 47.9% of attached housing have lot areas less than the minimum suggested lot area. 97.6% of surveyed residential buildings (flats) are below the suggested standard. In total, 85.7% of surveyed housing buildings are below the suggested standard as shown in figure (6-42). Investors tend to raise the number of flats within the same lot area to maximize their profits, especially to construct student's dorms. That's because of Almakhfia's closeness to Alnajah University, besides the high slop of Khallet Aladas's accommodates number of units above and below street levels increasing the number of flats within the same lot.

5.2.1 Housing setbacks

This section presents data and analysis of four setbacks: front, rear, and side setbacks. Each is presented in separate section. The setbacks differ from one

location to another. It depends on the overall density. Almakhfia is considered as a high density residential areas as shown in Previously.

(1) Front setback

Front setbacks are collected from Nablus's map, see appendix (35). It shows that the largest percentage (90.1%) of the housing buildings has less than 4.5 m front setbacks from access road.

The suggested standard of front setback depends on the overall height of the housing buildings as presented in section 5.5 Therefore, the analysis process reveals that 98.8% of surveyed housing front setbacks are less than the suggested standard as shown in figure (6- 43). It has negative effects on massing plus minimizing the available front open space for landscaping and playgrounds.

(1) Side setback

The right setbacks of buildings are collected from Nablus map, see appendix (36). Results illustrate that 66.4% of surveyed housing has side setbacks from 2.1m to 3m. It is the largest percentages comparing to other setbacks ranges. Moreover, left setbacks of housing buildings Almakhfia are collected from the map, see appendix (37). The largest percentage 69.1% of surveyed housing buildings has left setbacks from 2m to 3m.

The results show 74.7% of housing buildings in the surveyed areas has right setback less than the adopted standard as shown in figure (6-44). For left side, the analysis process illustrates that 70.0% of surveyed housing buildings are below the adopted standard as shown in figure (6-45). High percentages of deficiencies

in left and right setbacks negatively affect environmental issues in spaces inside and between adjacent buildings.

Rear setbacks

The rear setbacks of housing buildings are collected from Nablus's map, see appendix (38). The largest percent 56.0% of housing buildings has rear setbacks from 4m to 5m. Results indicate that a high percentage 91.5% in have rear setback less than the adopted standard as shown in figure (6-46).

Parking

Field survey shows the number of parking stops of each building. The design of parking areas differs from inside parking to outside parking occupying a part of gardens. Results show that 56.4% of housing buildings does not have the required number of parking stops. The study area has 4954 parking stops. Based on the suggested standards presented in section 5.5, the total required parking stops is 5607. See appendix (39).

However, some parking are not used, or not properly planned or drained resulted in congestion. Some parking areas are transformed into stores, commercial uses, or additional apartments. Moreover, others are planned to be in front of housing buildings causing visual pollutions

Entrances connection to streets

Field survey shows that all housing buildings connected to street, and easily accessible. However, housing units are connected to streets of different

conditions. Some streets have asphalt pavements and two sidewalks as shown in figure (6-47), while others have one side walk and poor asphalt pavement. Results show that only 15.1 % of housing buildings are connected to streets with good conditions, see appendix (40). Even though the highest percentage of bad street conditions increased the number of neglected areas on both street sides causing visual pollution and unhealthy environment.



Figure (6-47): Streets without pavements, streets with two sided pavements. (The researcher, 2012)

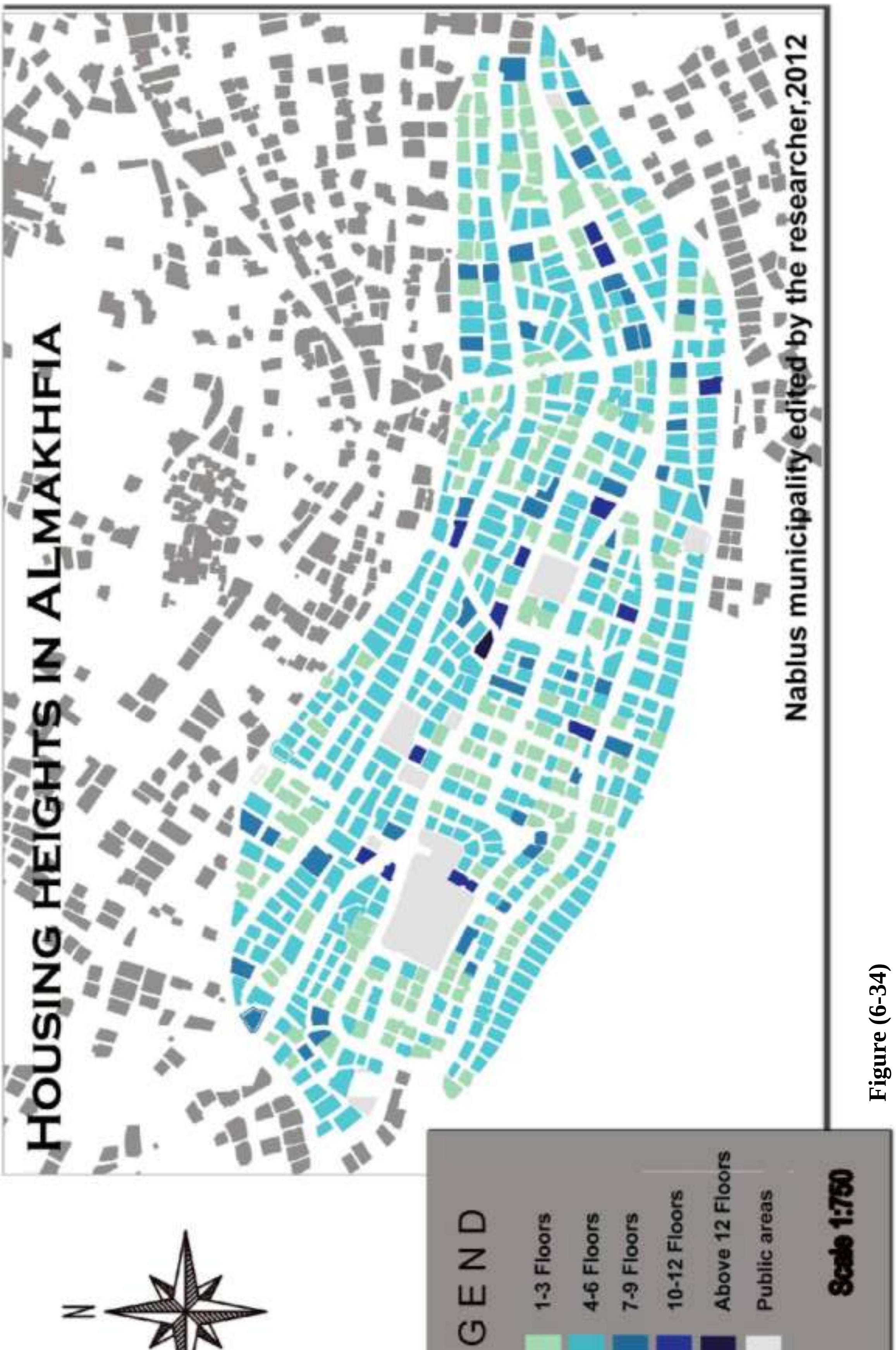

HOUSING HEIGHTS IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
N
LEGEND
1-3 Floors
4-6 Floors
7-9 Floors
10-12 Floors
Above 12 Floors
Public areas
Scale 1:750

Figure (6-34)

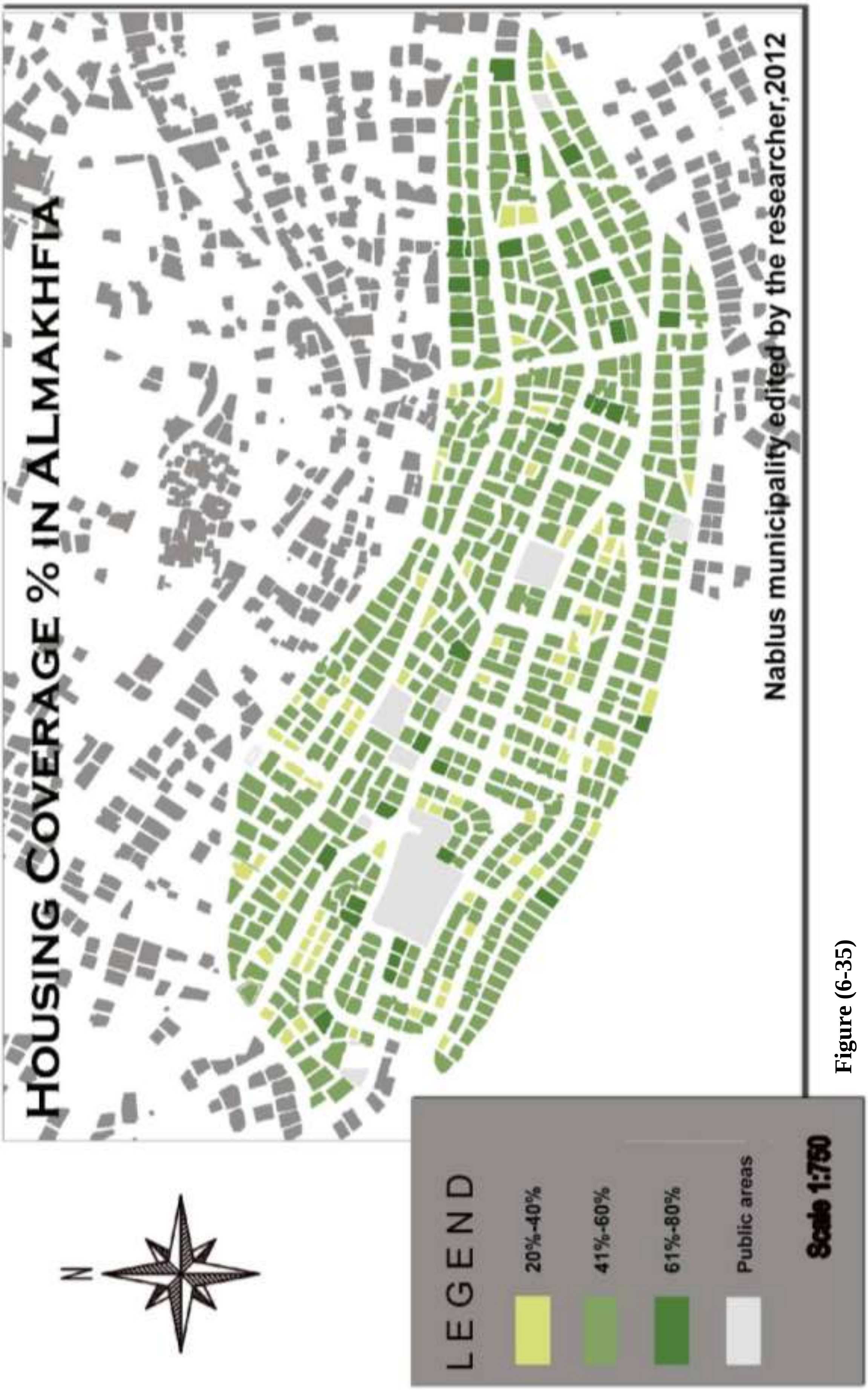

HOUSING COVERAGE % IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
LEGEND
20%-40%
41%-60%
61%-80%
Public areas
Scale 1:750
N

Figure (6-35)

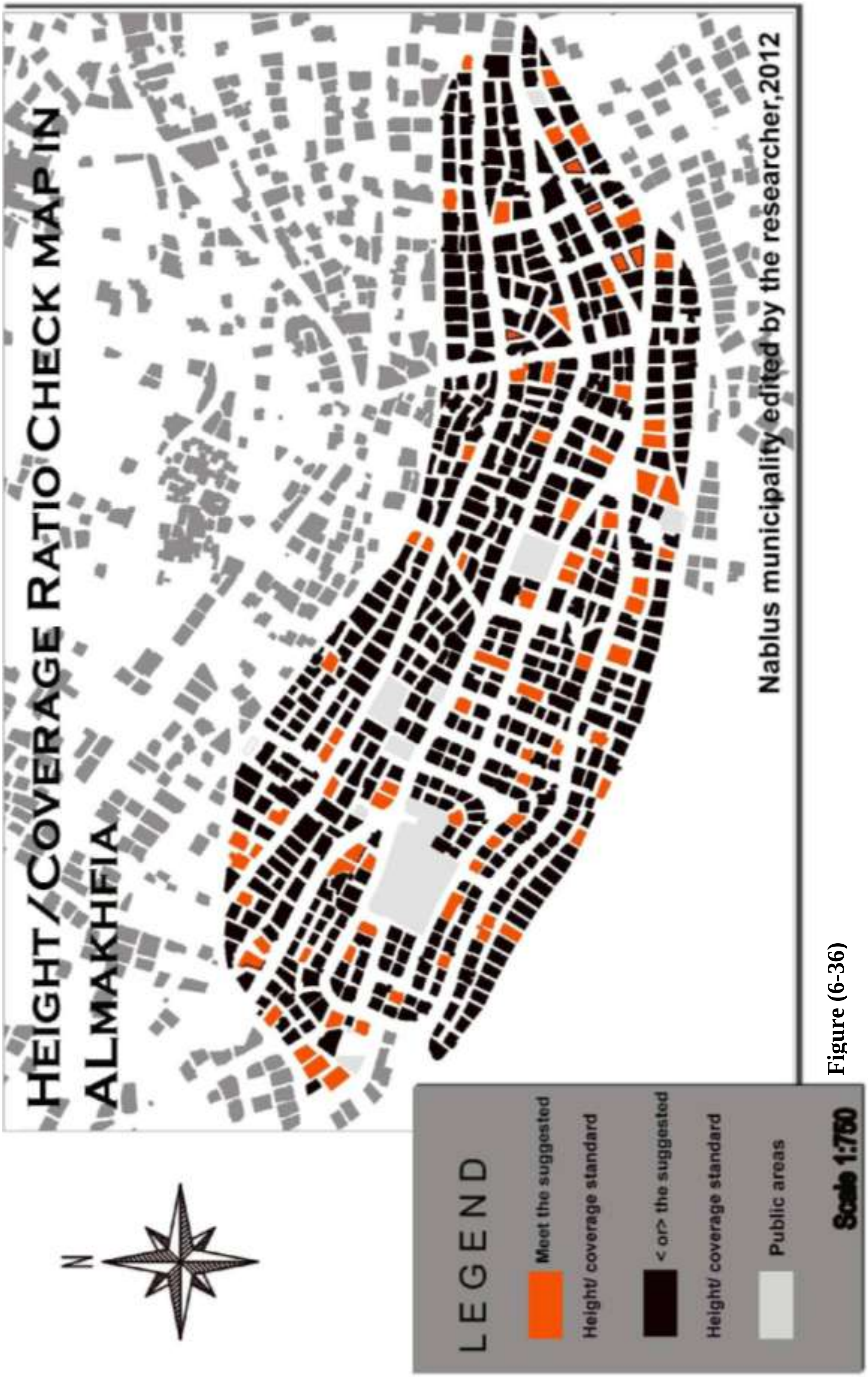

HEIGHT/COVERAGE RATIO CHECK MAP IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
N
LEGEND
Meet the suggested Height/ coverage standard
< or> the suggested Height/ coverage standard
Public areas
Scale 1:750

Figure (6-36)

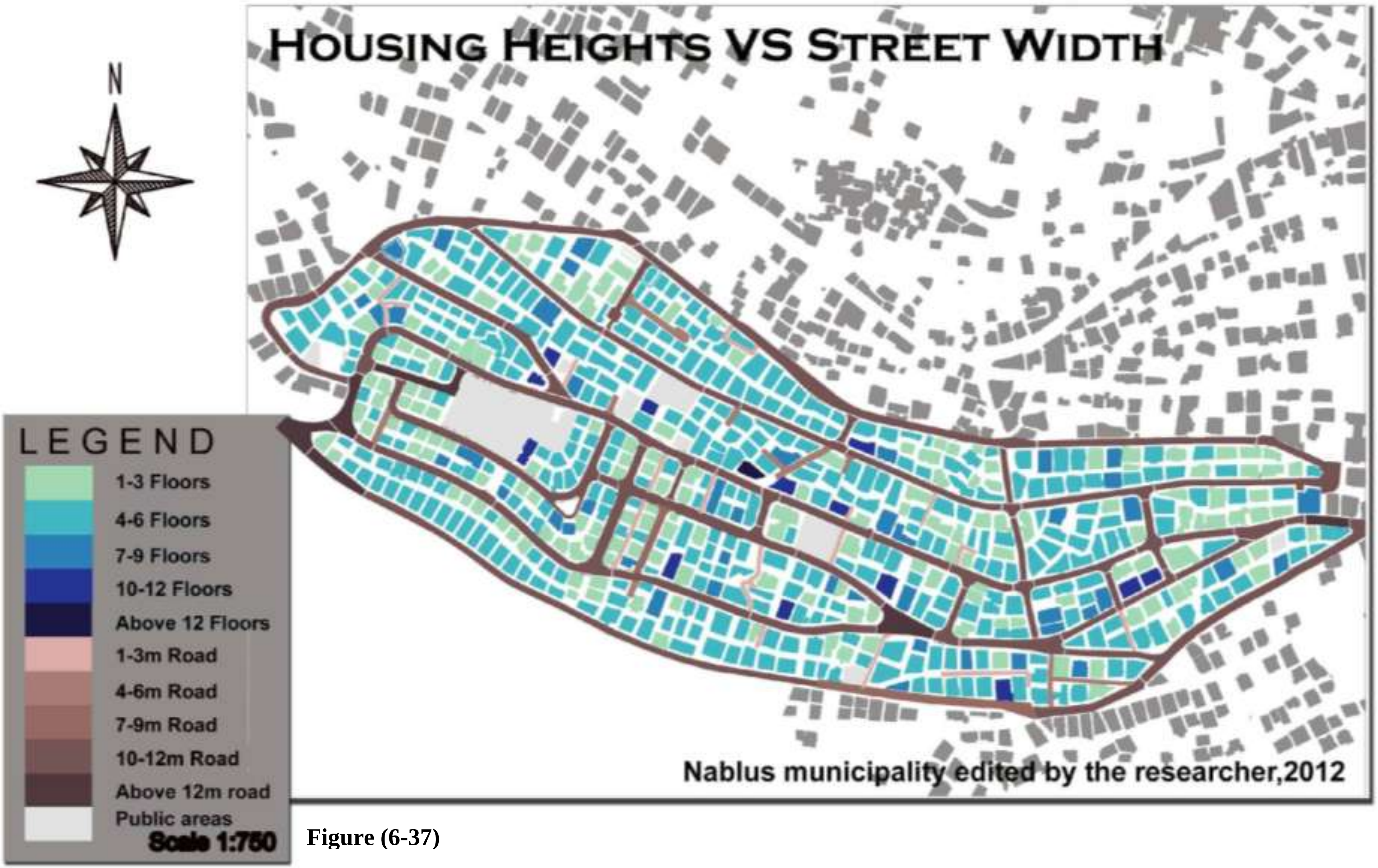

HOUSING HEIGHTS VS STREET WIDTH
N
LEGEND
1-3 Floors
4-6 Floors
7-9 Floors
10-12 Floors
Above 12 Floors
1-3m Road
4-6m Road
7-9m Road
10-12m Road
Above 12m road
Public areas
Scale 1:750
Nablus municipality edited by the researcher,2012

Figure (6-37)

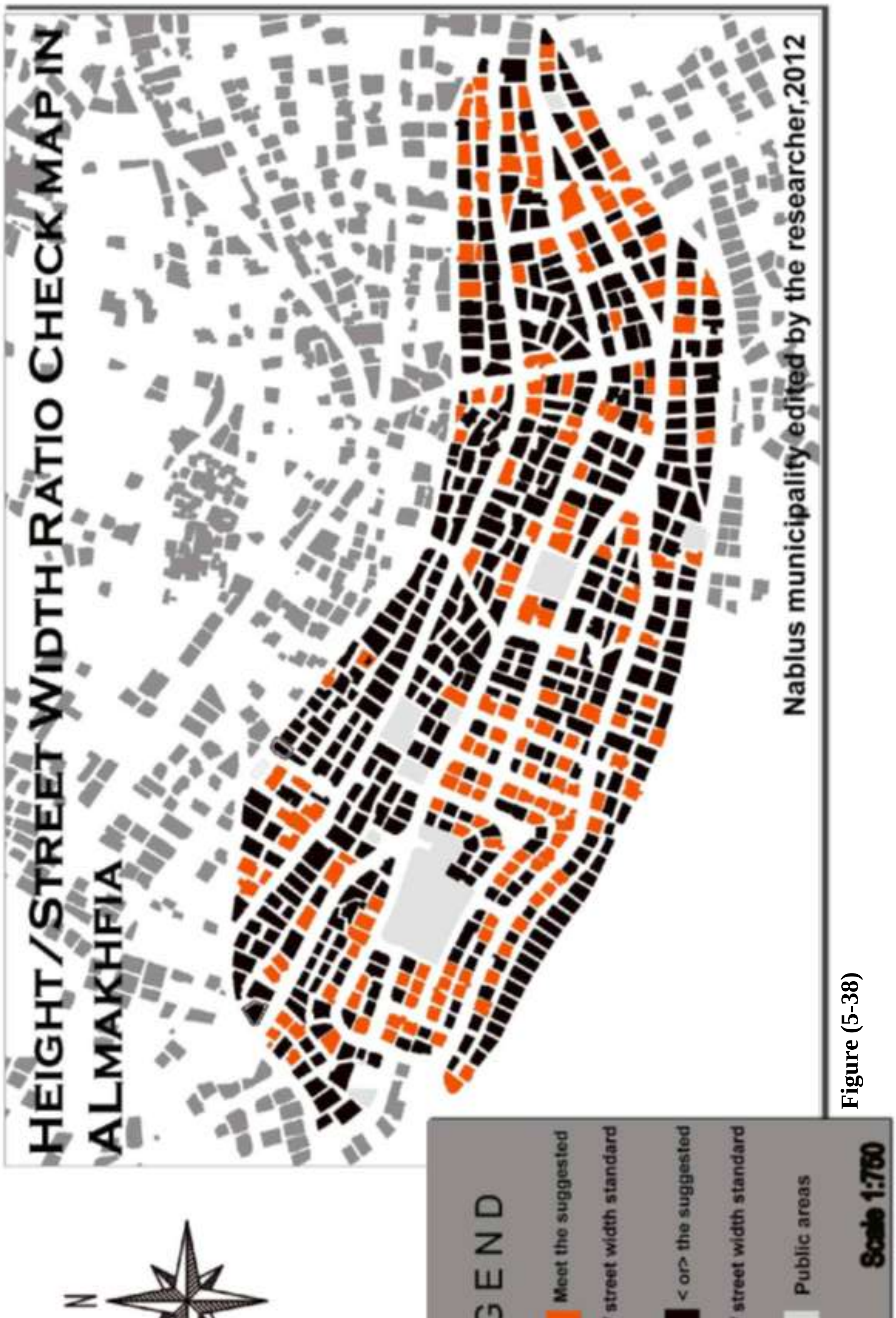

HEIGHT/STREET WIDTH RATIO CHECK MAP IN
ALMAKHFIA
Nablus municipality edited by the researcher,2012
LEGEND
Meet the suggested
Height/ street width standard
< or> the suggested
Height/ street width standard
Public areas
Scale 1:750
N

Figure (5-38)

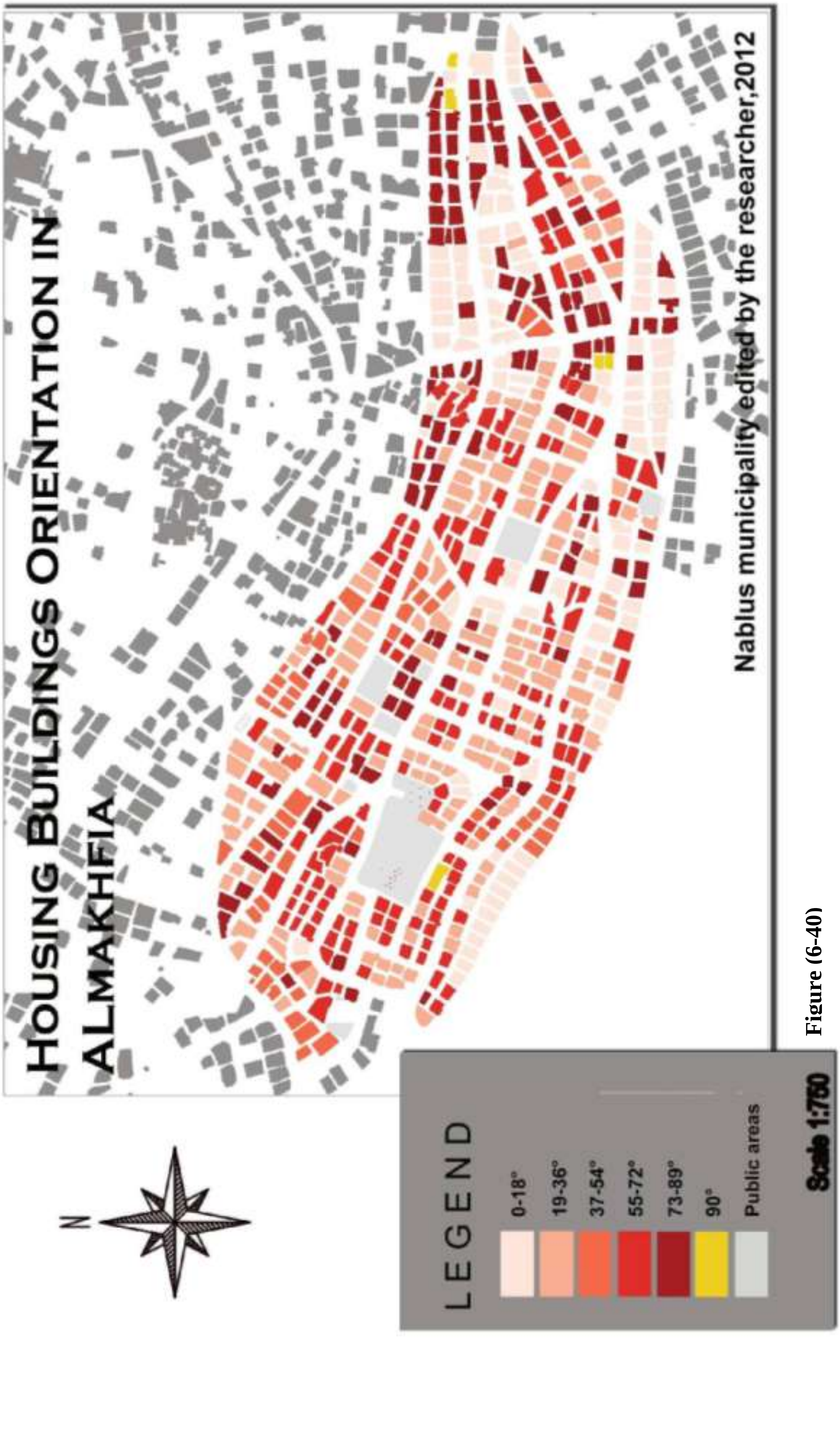

HOUSING BUILDINGS ORIENTATION IN
ALMAKHFIA
Nablus municipality edited by the researcher,2012
LEGEND
0-18°
19-36°
37-54°
55-72°
73-89°
90°
Public areas
Scale 1:750
N

Figure (6-40)

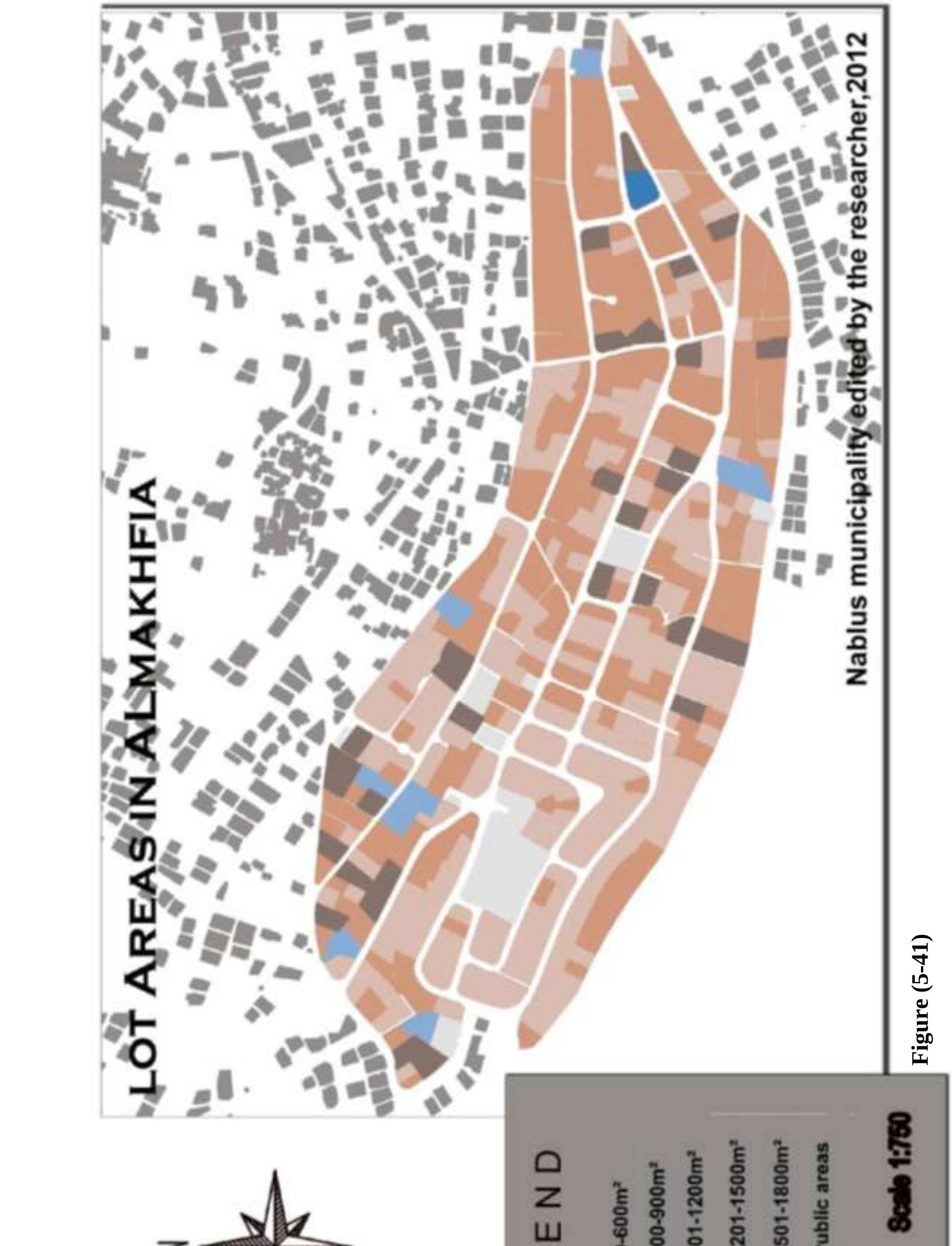

LOT AREAS IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
LEGEND
0-600m²
600-900m²
901-1200m²
1201-1500m²
1501-1800m²
Public areas
Scale 1:750
N

Figure (5-41)

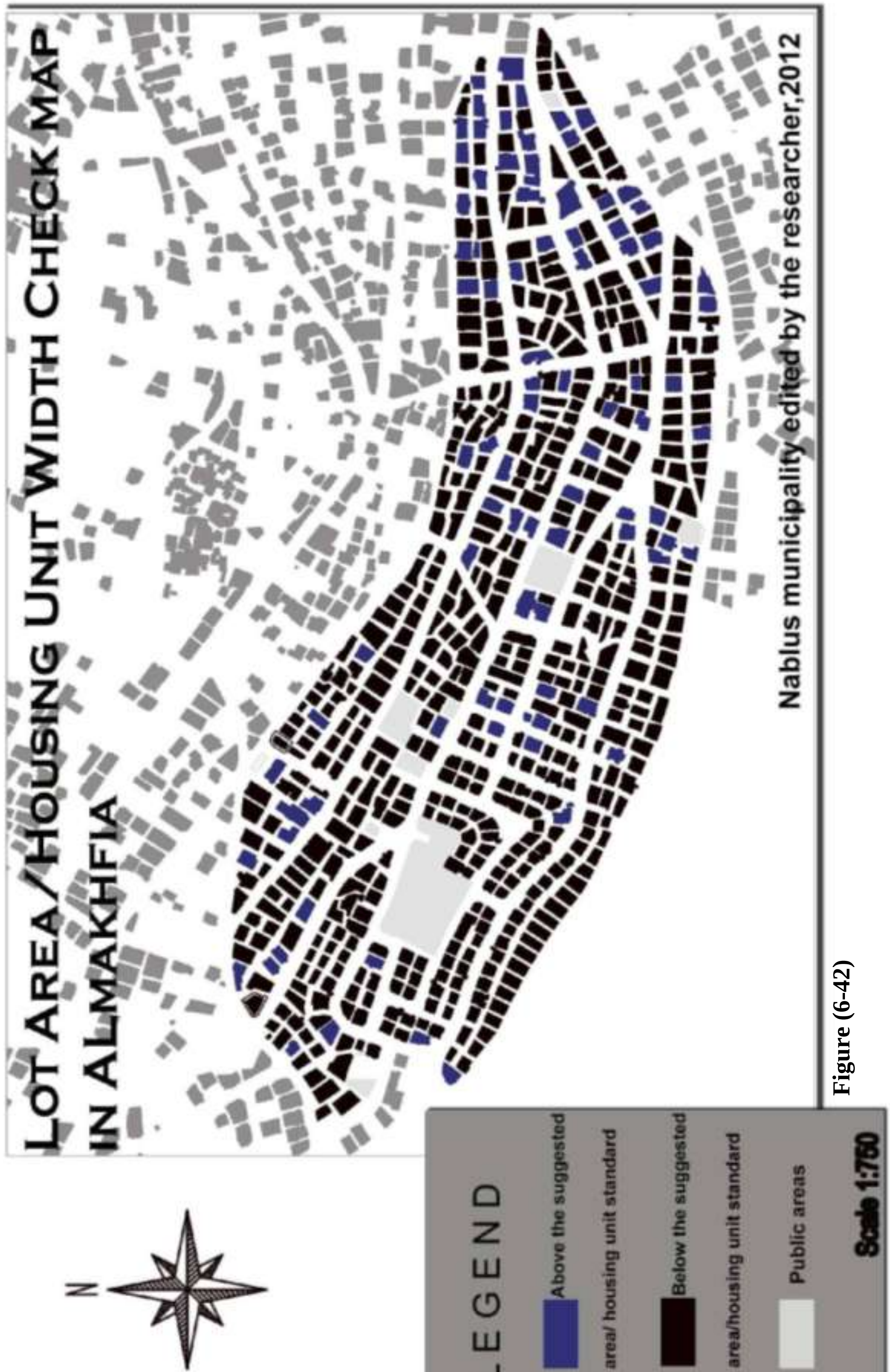

LOT AREA/HOUSING UNIT WIDTH CHECK MAP
IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
LEGEND
Above the suggested
area/ housing unit standard
Below the suggested
area/housing unit standard
Public areas
Scale 1:750
N

Figure (6-42)

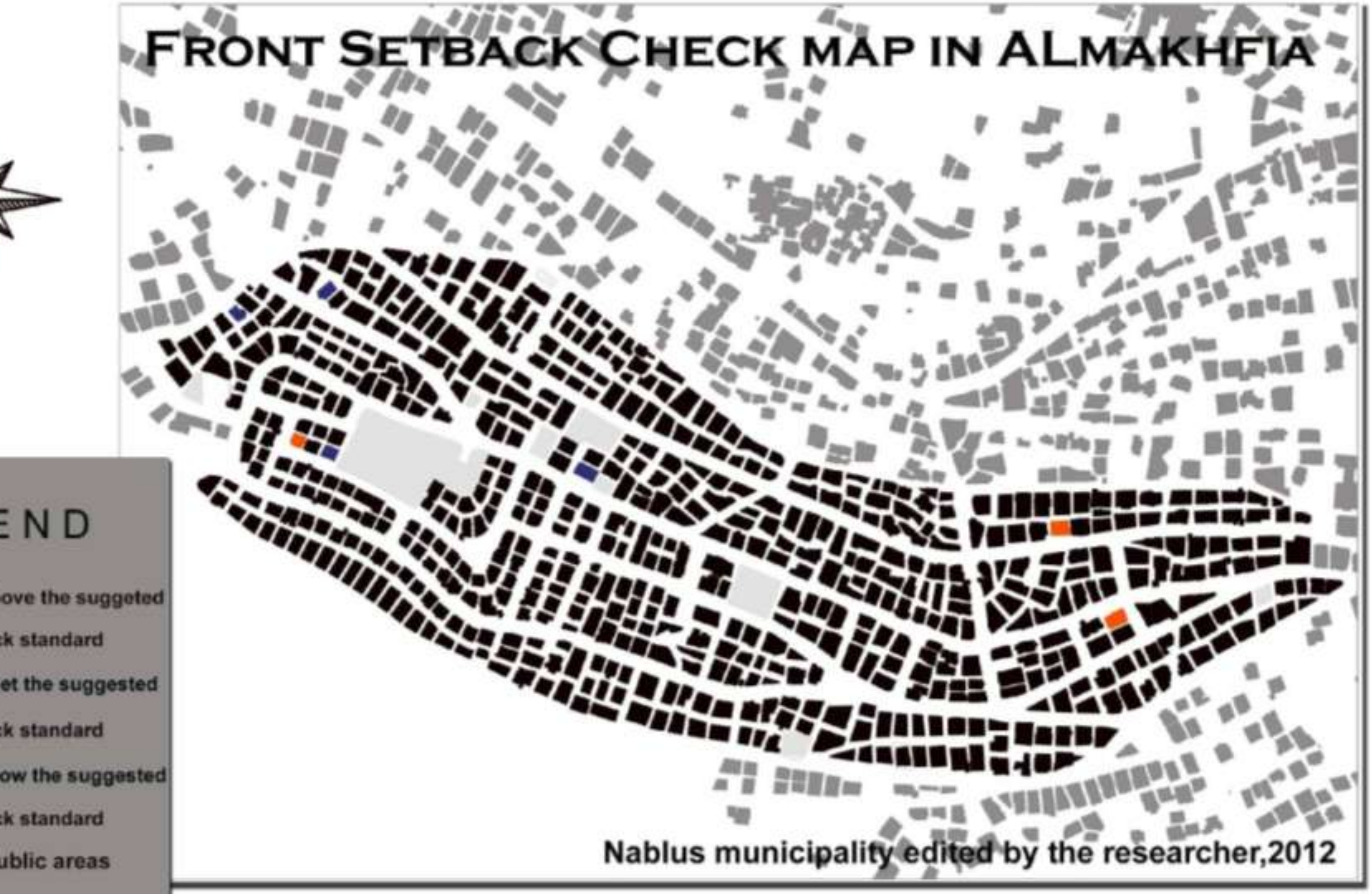

FRONT SETBACK CHECK MAP IN ALMAKHFIA
Nablus municipality edited by the researcher,2012
END
ove the suggeted
k standard
et the suggested
k standard
ow the suggested
k standard
ublic areas
Scale 1:750

Figure (6-43)

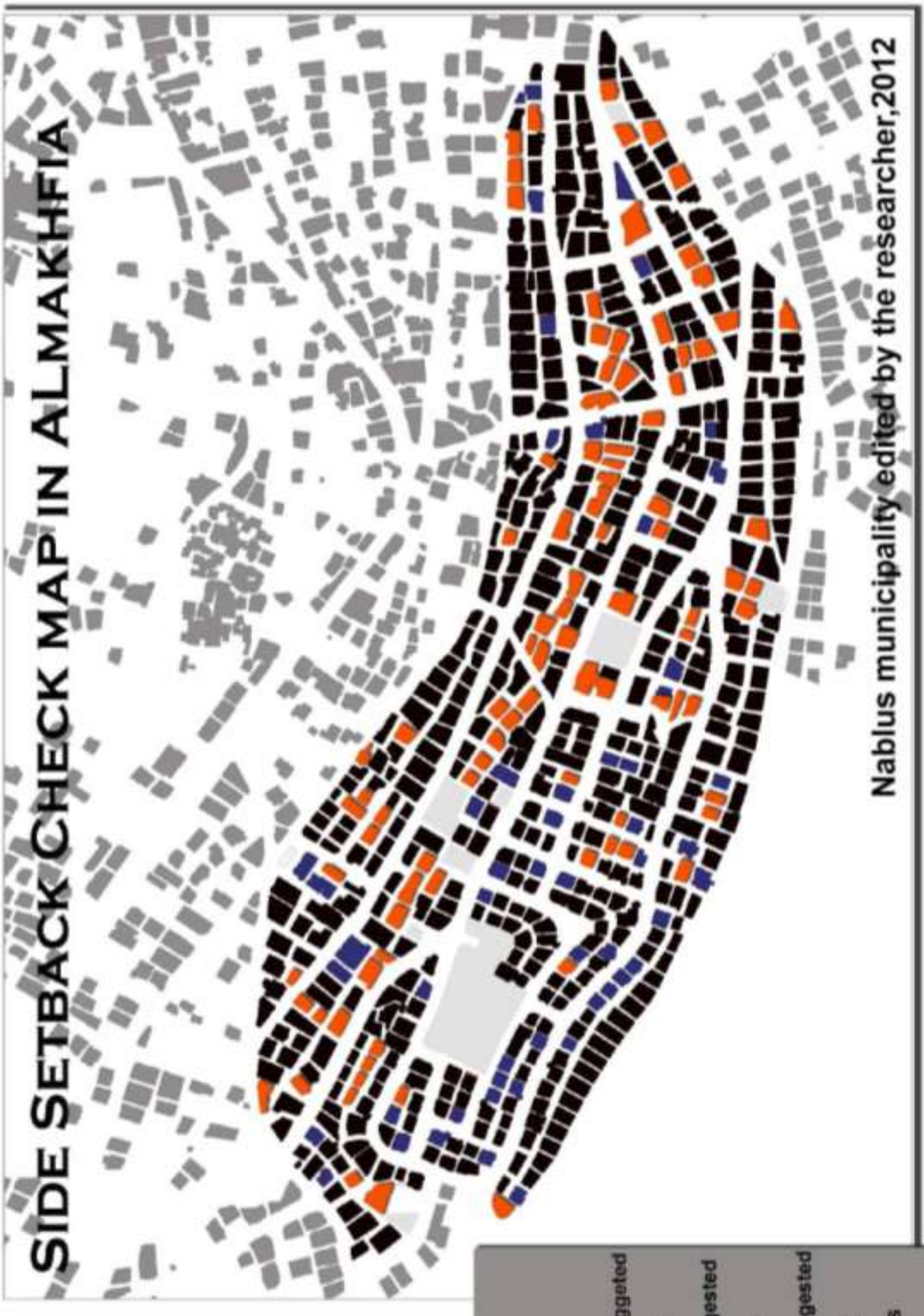
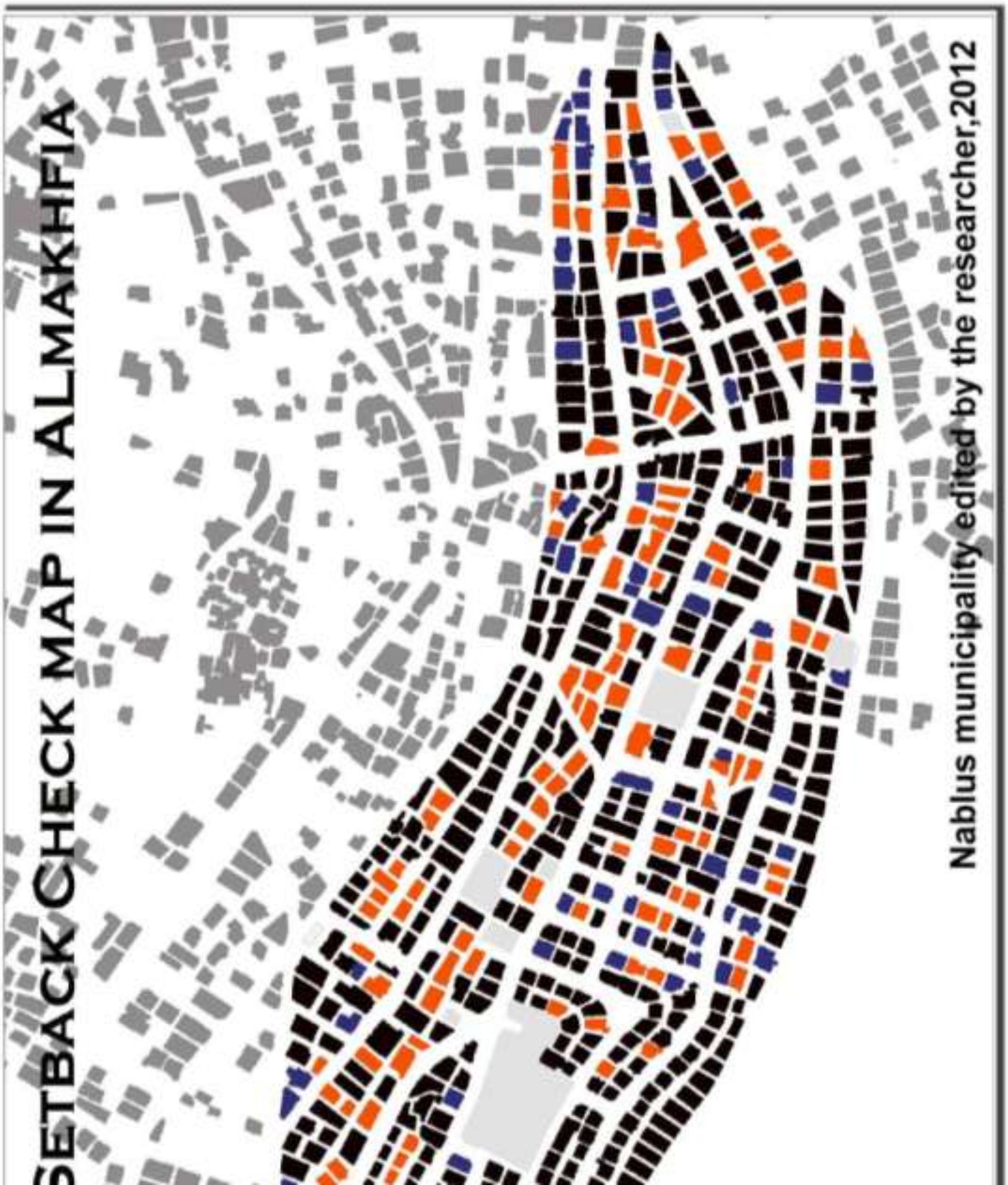

SIDE SETBACK CHECK MAP IN ALMAKHFIA
Nablus municipality edited by the researcher,2012

Figure (5-44)


DE SETBACK(2) CHECK MAP IN ALMAKHFIA
Nablus municipality edited by the researcher,2012

gure (5-45)


SETBACK CHECK MAP IN ALMAKHFIA
Nablus municipality edited by the researcher,2012

Analysis of social services: The case of Almakhfia

This part will present the same social facilities of Almakhfia following the analysis process that followed in section 5.2.

Educational services

Data collection shows that educational services are two kindergartens, three primary schools, and one secondary school. Kindergartens are in the ground level of housing buildings. The area of both kindergartens is about 0.03Ha. Elementary Schools are as follow: Almakhfia Boys' Elementary School (0.31Ha), Said Ben Amer Girls' Elementary School (0.27Ha), and Boys' Hasib Alsabbagh School (0.24Ha). Moreover, Omar Ben Alkhattab Boys' Secondary School is about 0.511Ha. It is important to note that there is one more secondary school close to the boundaries of the study area. It is Jamal Omar Almasri Girls' Secondary School of about 0.17Ha (Directorate of Education, 2012).

The analysis process is based on section 4.5. For kindergarten, the analysis process reveals present deficiency of (1.54Ha) in kindergarten and it will be 4.55Ha in 2025 area, see appendix (41). 500m from existing kindergarten, only 84.5% of housing units will be served by the year 2025, as shown figure (6-48).

For elementary schools, the analysis process indicates present deficiency (29Ha) and it will be 42.8 Ha in 2025 area, see appendix (42). The optimum distance 1000m from elementary school, girls' elementary school will serve 77.8% of surveyed housing units by the year 2025. However, all surveyed housing units by boys' elementary school as shown in figures (6-49) & (6-50).

For secondary schools, the analysis process illustrates present surplus 31.6H and it will be 44.2 Ha in 2025 area, see appendix (43). The secondary schools for boys and girls will serve all surveyed housing units by the year 2025, as shown in figure (6-51) and (6-52).

Health services

The field survey shows that there is one health center in the study area. The location and the capacity of other health facilities are collected from Palestinian health ministry, see appendix (44).

Based on section 5.5, comparing to the exiting area of clinics complex (1.70Ha), there is 2.3Ha deficiency at present (2013), It is expected to increase to be 4.87Ha by the year 2025, see appendix (45). 1000m from clinics, 96.0% of housing units in Almakhfia will be served as shown in figure (6-53). Comparing to standards proposed in section 4.5, there will be a shortage of 678beds by the year 2025, see appendix (46).Moreover, 96.4% of the surveyed housing units will be covered by 1500 catchment area of general hospital as shown in figure (6-54).

Weekly and daily shops

Field survey demonstrates that there are several daily shops within the boundaries of the study area, as shown in figure (6-55). The field survey shows that all daily shops are occupying the ground floors of residential buildings. However, the study area does not have weekly shops. The analysis indicates that the existing daily shops facilities are mostly enough to population in 2013, and there will be a deficiency of 0.057Ha in daily shops areas by the year 2025, see appendix (47).

Daily shops are distributed overall the study area, so all surveyed housing units are located within 500m catchment area of daily shops.

Master plan of Nablus city does not show any commercial land use close to the study area for future developments. The lack of weekly shopping centers resulted in raising the number of journeys to the center of the city to satisfy peoples' need increasing the traffic congestion

Religious services

Field survey shows that there are two mosques in Almakhfia within the boundaries of the study area they are built on residential lands. Its area is about 0.12Ha. There are no churches in the study area. There are four churches in the city; one of them is very close to the site.

The results show mosques deficiency equals to 0.01Ha by the year 2025 see appendix (48). However, it is evident that the two mosques are serving the western surrounding neighbors. 800m catchment areas of the two mosques and the closest church are serving all surveyed housing units as shown in figure (6-56) and (6-57) respectively

Cafes

Field survey shows that there are four cafes within the study area; they are constructed on residential lands with areas as follow: (0.081Ha), (0.011Ha), (0.017Ha), and(0.024Ha)

The analysis reveals a shortage of 0.05Ha in cafes in 2013. It is estimated to increase to be 0.29Ha in 2025, see appendix (49). However, it is important to note that those two cafes are also serving the students of Al-Najah University. The 800m catchment areas of four cafes are covering all the study as presented in figure (6-58). The investors tended to transform the parking areas in ground level of buildings into cafes and restaurant to maximize their profits. But still, existing cafes are not enough to serve the residents of the study area.

Cultural services

There are three main cultural centers in Nablus as follow (Nablus municipality, 2012):

1. Nablus municipality library: its area is about 0.3Ha. it includes 0.048Ha built up area, and 0.25Ha garden. It serves the total population of the city.
2. Hamdi Mnko library: its area is about 0.48Ha. Its land is truncated from existing public park lands. It mainly serves the children of the city.
3. Cultural kids' center: it is area is about 0.07Ha. It provides cultural and educational courses and activities for children.

High deficiencies are in libraries and youth centers, see appendix (50). 1500m catchment area of Nablus libraries, 3.8% of all surveyed housing units of the study area will be in deficit zone by the year 2025 as shown in figure (6-59). Moreover, all the study area will not be served by the existing cultural kids' center if 1000m is considered for catchment area as shown in figure (6-60).

Other services (Post office, police station, and fire station)

The map of Nablus facilities (2012) shows that that Nablus city those facilities in the same location close to the center of the city. They are about 500m from Nablus old city.

1. One post office: Its area is about 0.03Ha, and it serves the total population of the city.
2. One police station: its area is about 0.1Ha, and it also serves the total population of the city.
3. One fire station: its area is about 0.18Ha, and it serves the total population of the city.

The results reveal that there will be a surplus of 0.26Ha in police station services by the year 2025. However, there will be a deficiency of 0.01Ha in post office by the year 2025, and a deficiency of -.77Ha in fire station. None of police station, post office and fire station is serving surveyed housing units in the study area in figures (6-61), (6-62), and (6-63). See appendix (51).

Public transportation

Field survey shows that there is only one public taxis station in front of Alnajah University. It mainly serves the students of Alnajah University, as shown in figure (6-64). If 500m catchments are is considered, 22.5% of housing units are close enough to the taxis station. However, taxis are available and on duty most of the time in the streets of Almakhfia. See appendix (52).

Open green spaces

The master plan of Nablus city shows that there is only one small garden within the study area, which is Almakhfia garden. It has about 0.09Ha area with a bad outdoor children's playground. Nablus master plan shows many lands determined for open spaces land use distributed throughout city parts. See appendix (53).

The analysis introduces a high deficiency in open green spaces required in both city and neighborhood levels, see appendix (54). Areas' deficits are about 17.11Ha at neighborhood level, and 37.1Ha at the city level. If 1000m catchment area is considered for district parks, 91.1% of surveyed housing units will be served by the year 2025 as shown in figure (6-65). Moreover, results also emphasize a deficiency in city level. About 80.4% of housing units will fall out of the optimum catchment area of city parks as shown in figure (6-66).

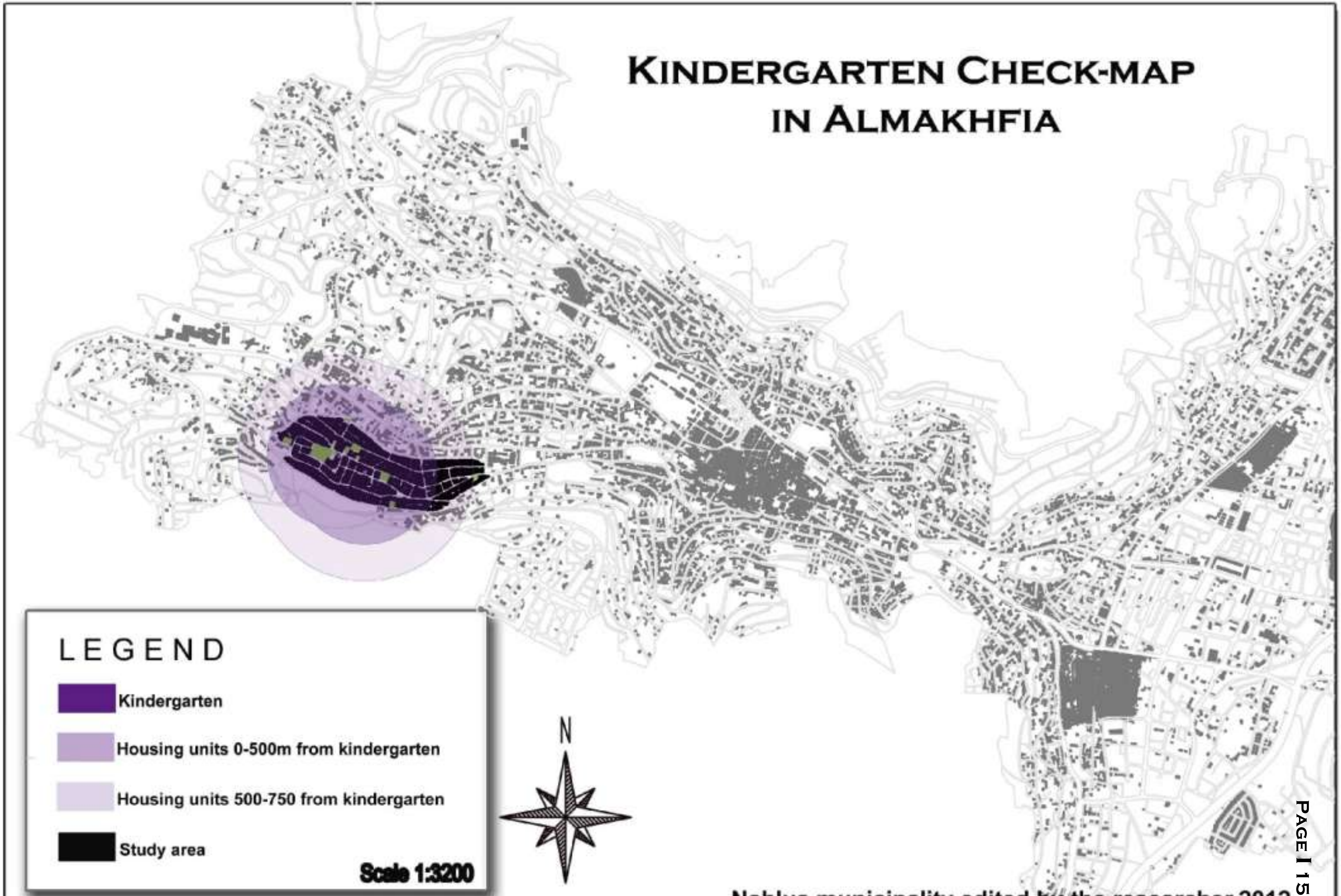
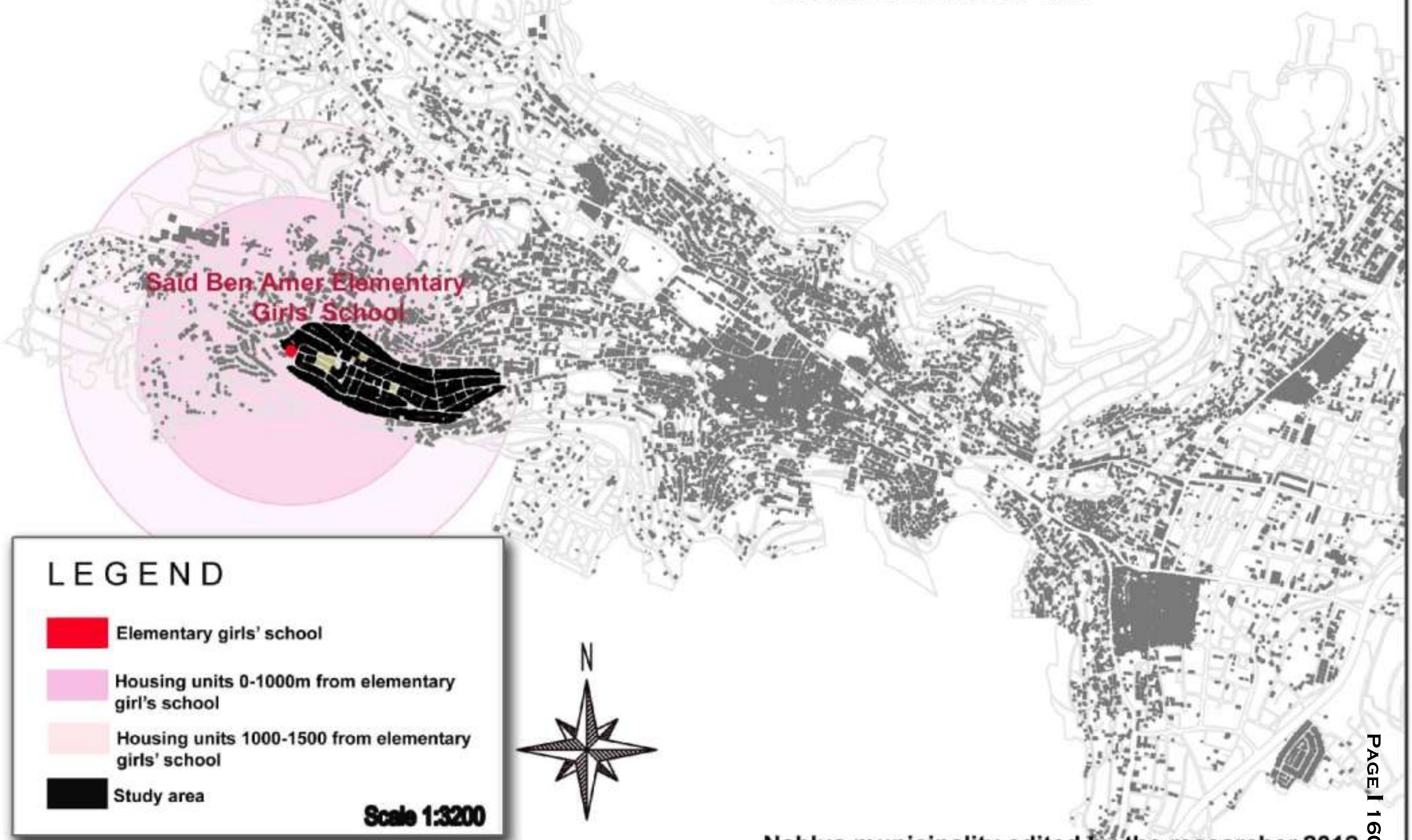

KINDERGARTEN CHECK-MAP
IN ALMAKHFIA
LEGEND
Kindergarten
Housing units 0-500m from kindergarten
Housing units 500-750 from kindergarten
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-48)

GIRLS' ELEMENTARY SCHOOL CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (6-49)

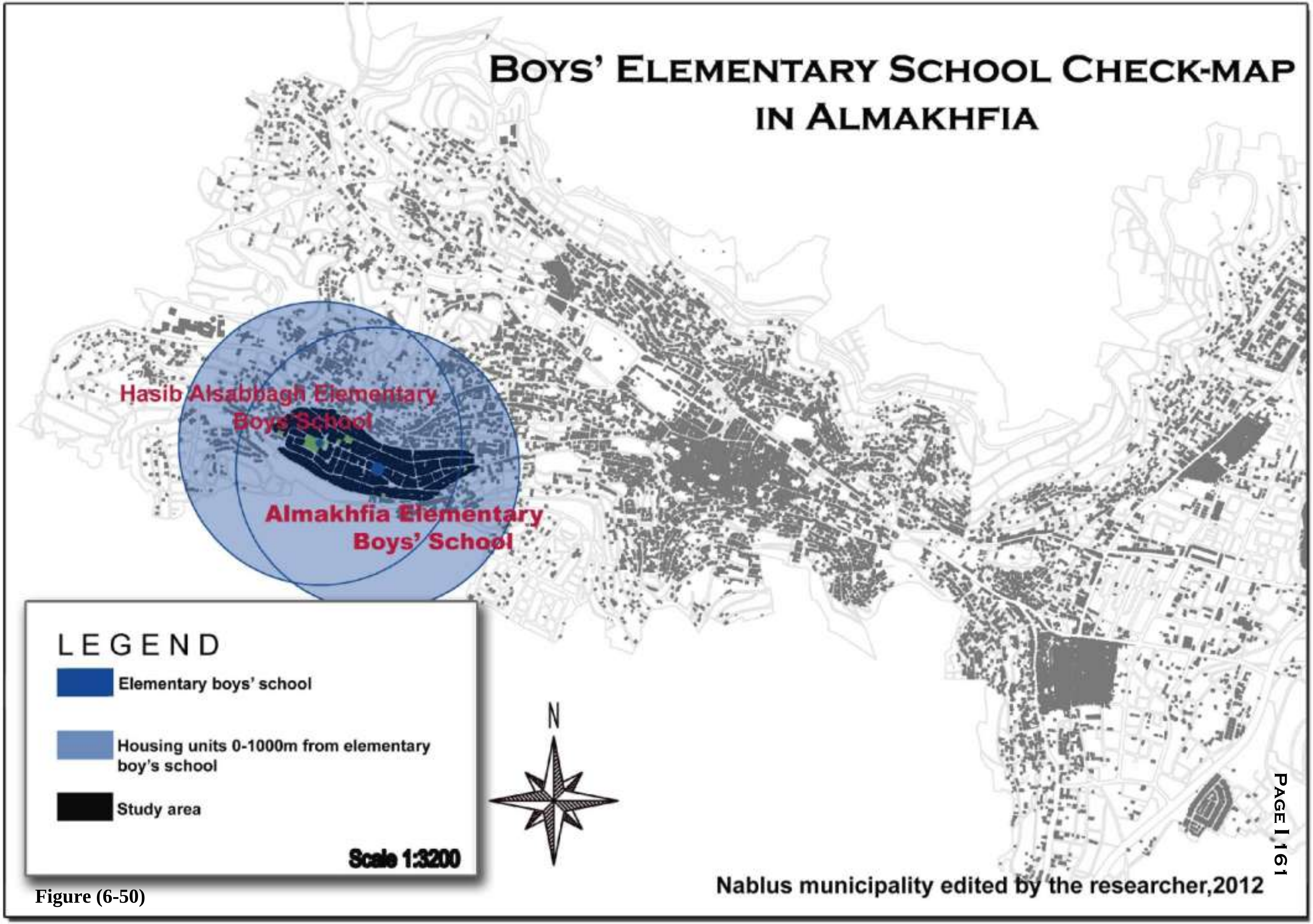

BOYS' ELEMENTARY SCHOOL CHECK-MAP
IN ALMAKHFIA
Hasib Alsabbagh Elementary
Boys' School
Almakhfia Elementary
Boys' School
LEGEND
Elementary boys' school
Housing units 0-1000m from elementary boy's school
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-50)

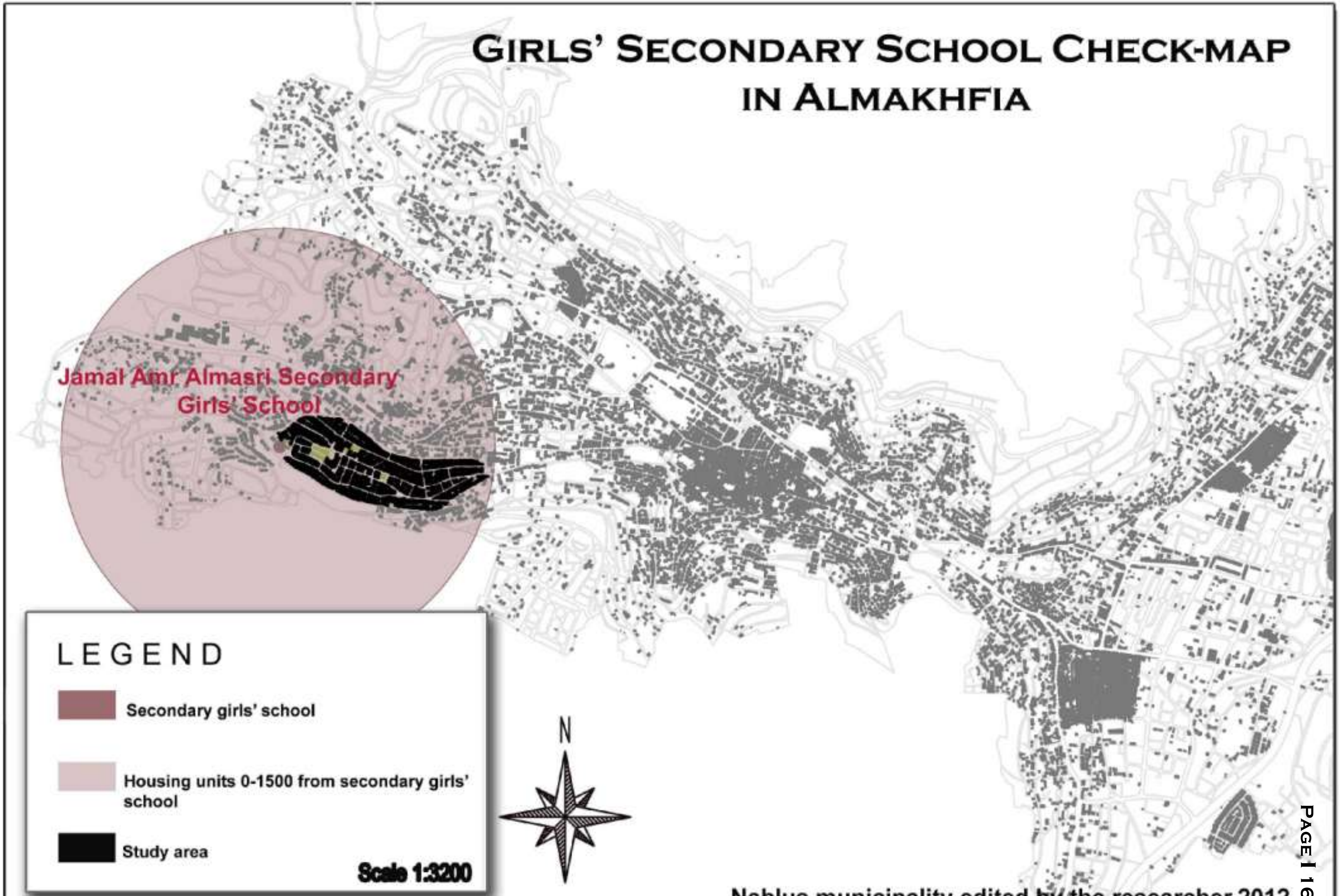
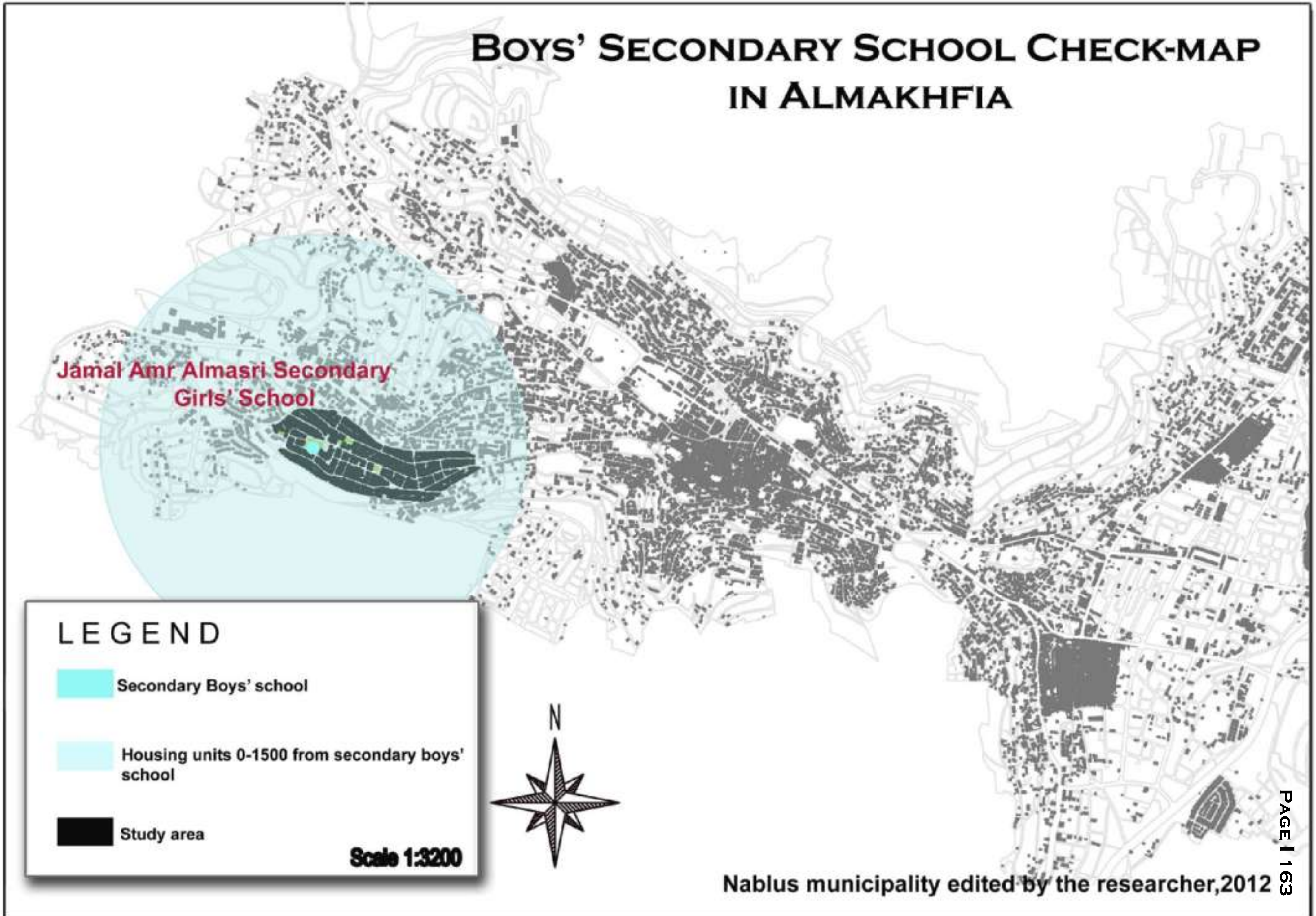

GIRLS' SECONDARY SCHOOL CHECK-MAP
IN ALMAKHFIA
Jamal Amr Almasri Secondary
Girls' School
LEGEND
Secondary girls' school
Housing units 0-1500 from secondary girls' school
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

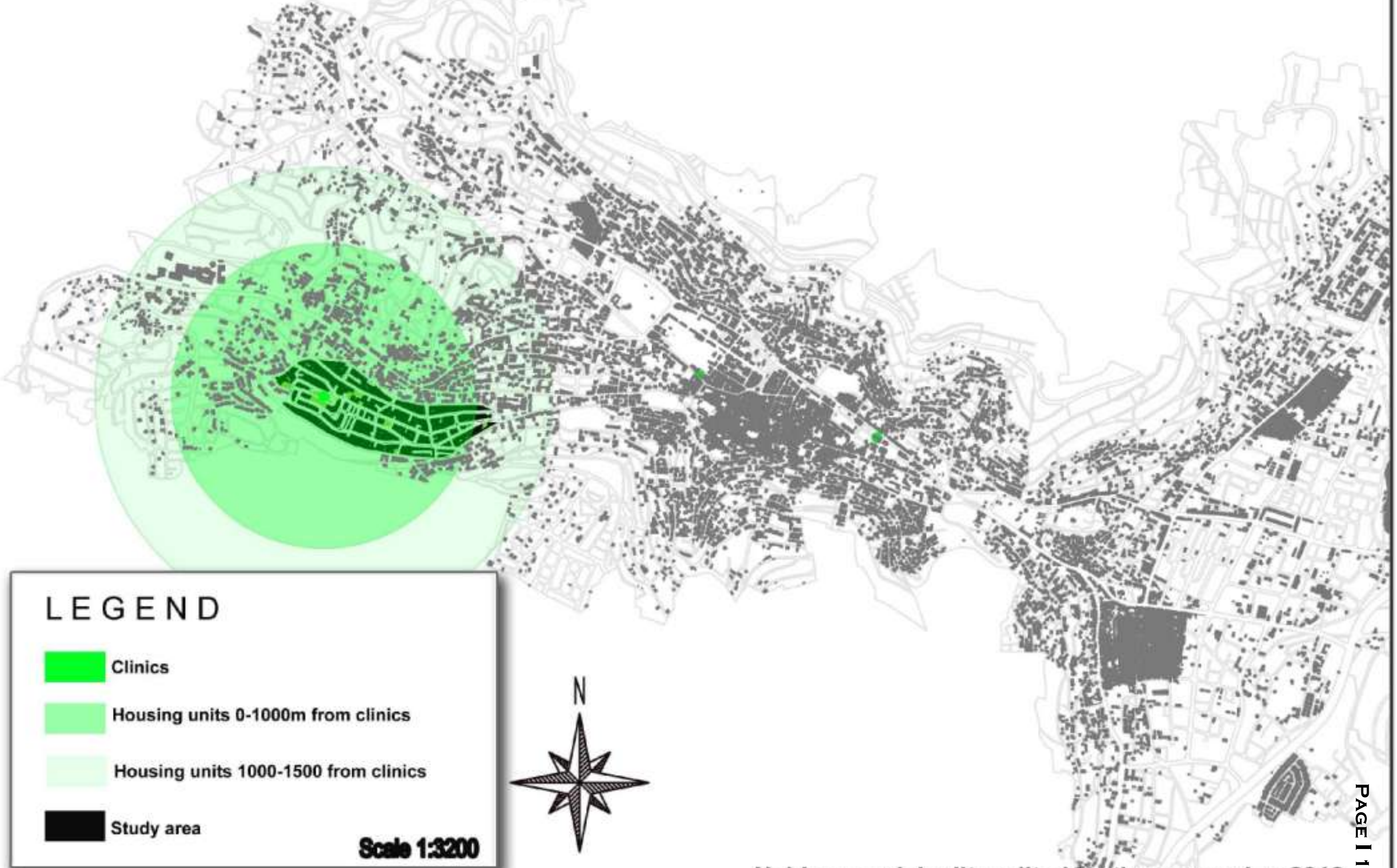
Figure (6-51)

BOYS' SECONDARY SCHOOL CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

CLINICS CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (5-53)

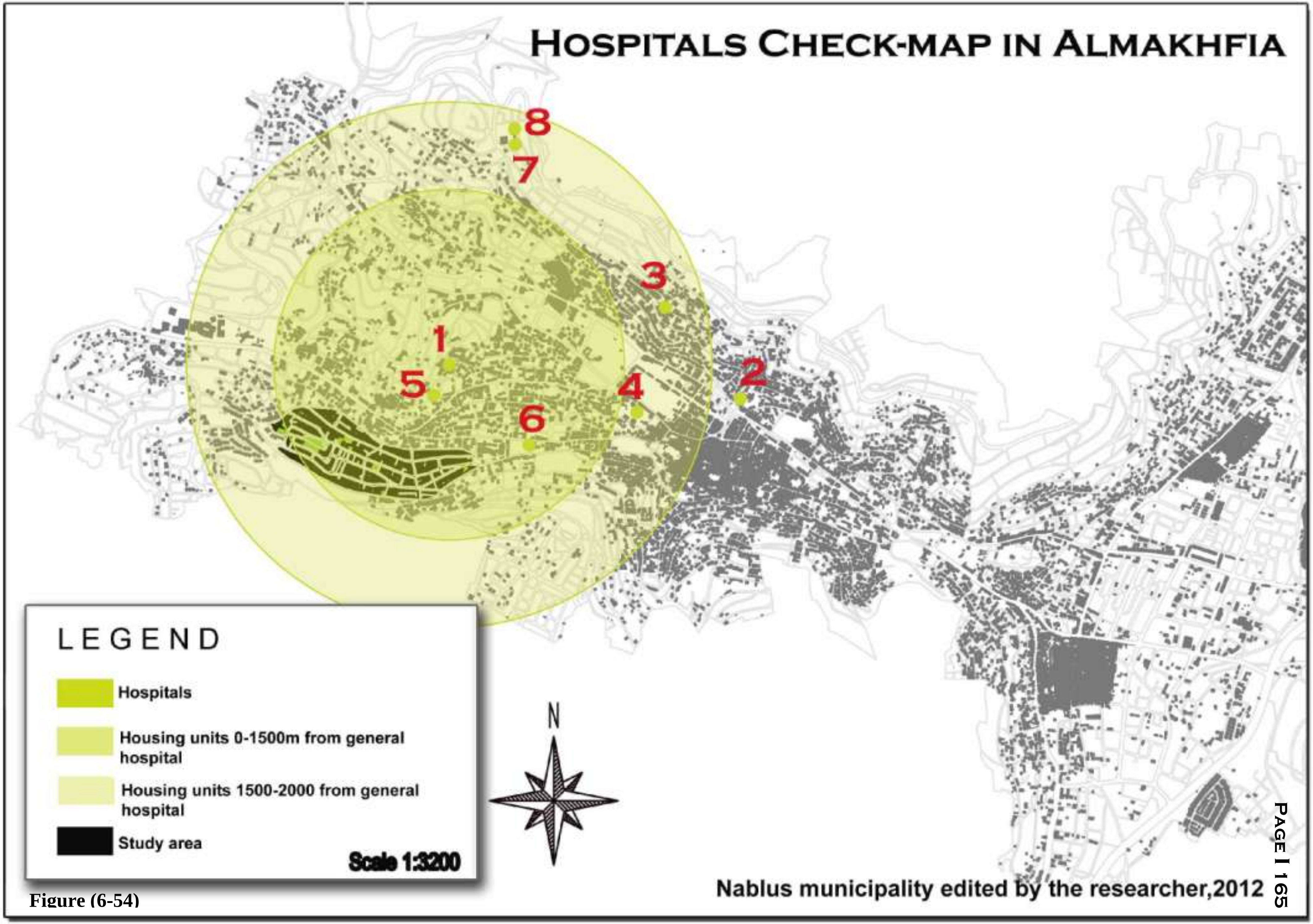
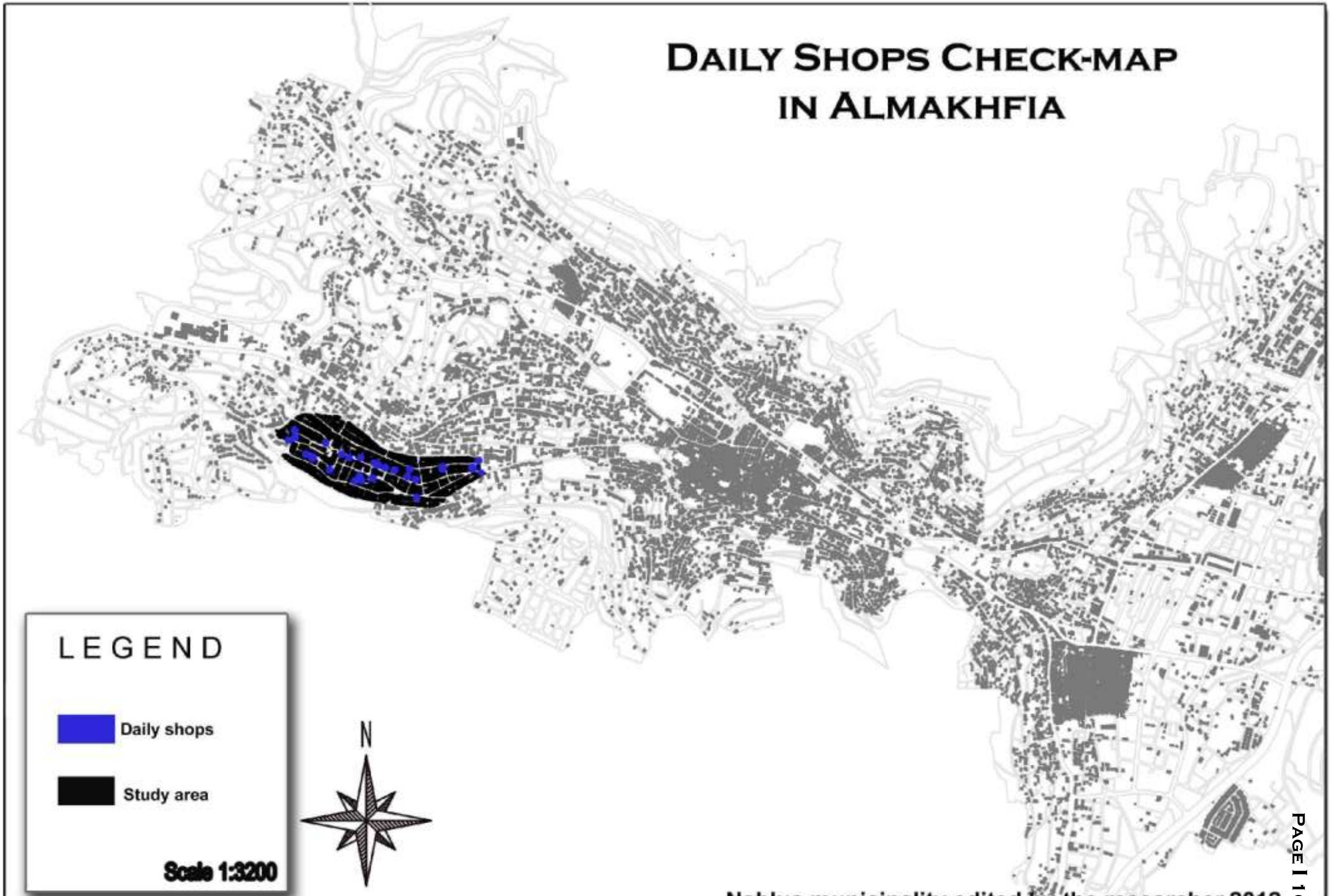

HOSPITALS CHECK-MAP IN ALMAKHFIA
8
7
3
1
2
5
4
6
LEGEND
Hospitals
Housing units 0-1500m from general hospital
Housing units 1500-2000 from general hospital
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

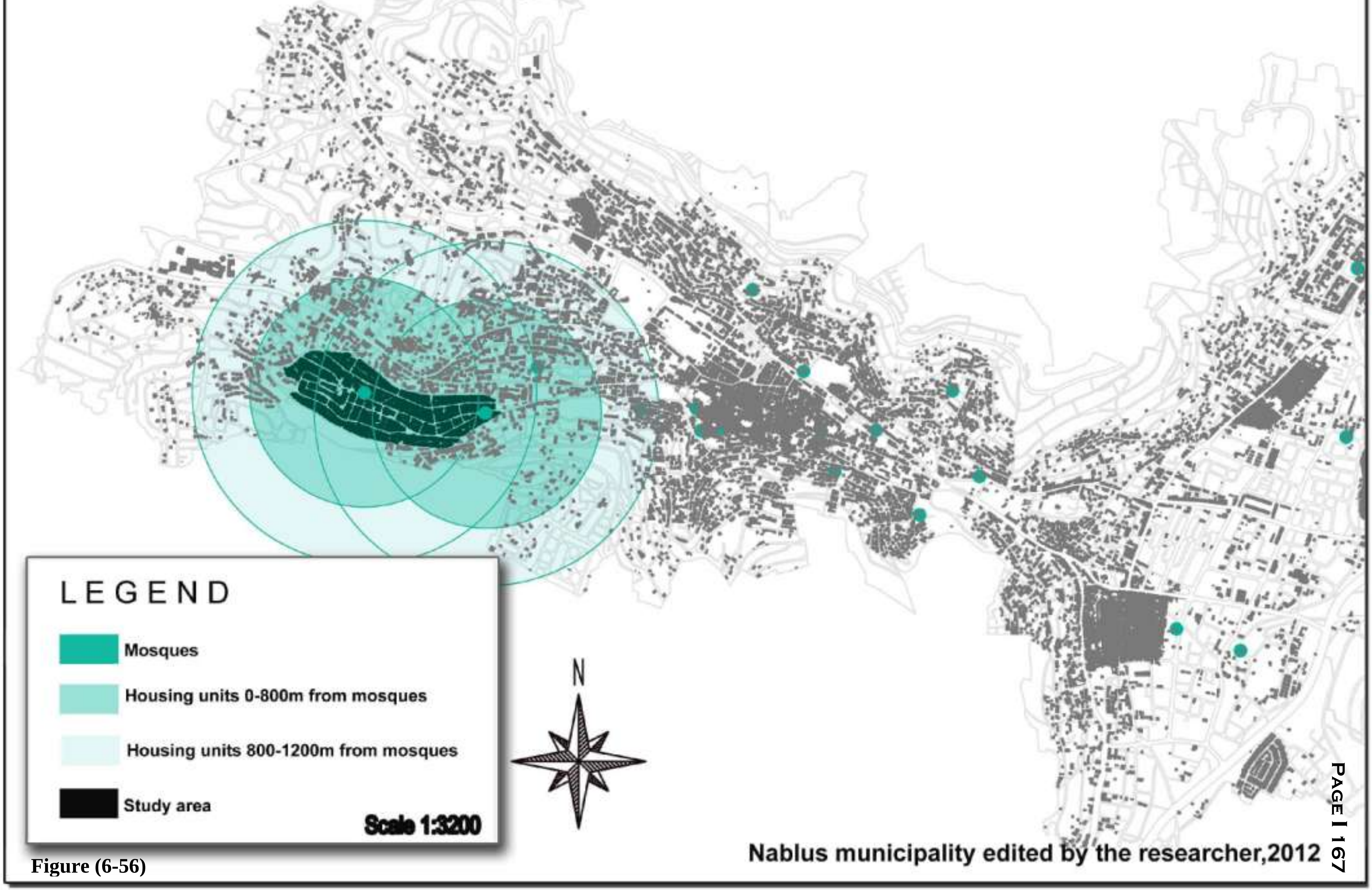
Figure (6-54)



DAILY SHOPS CHECK-MAP
IN ALMAKHFIA
LEGEND
Daily shops
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-55)

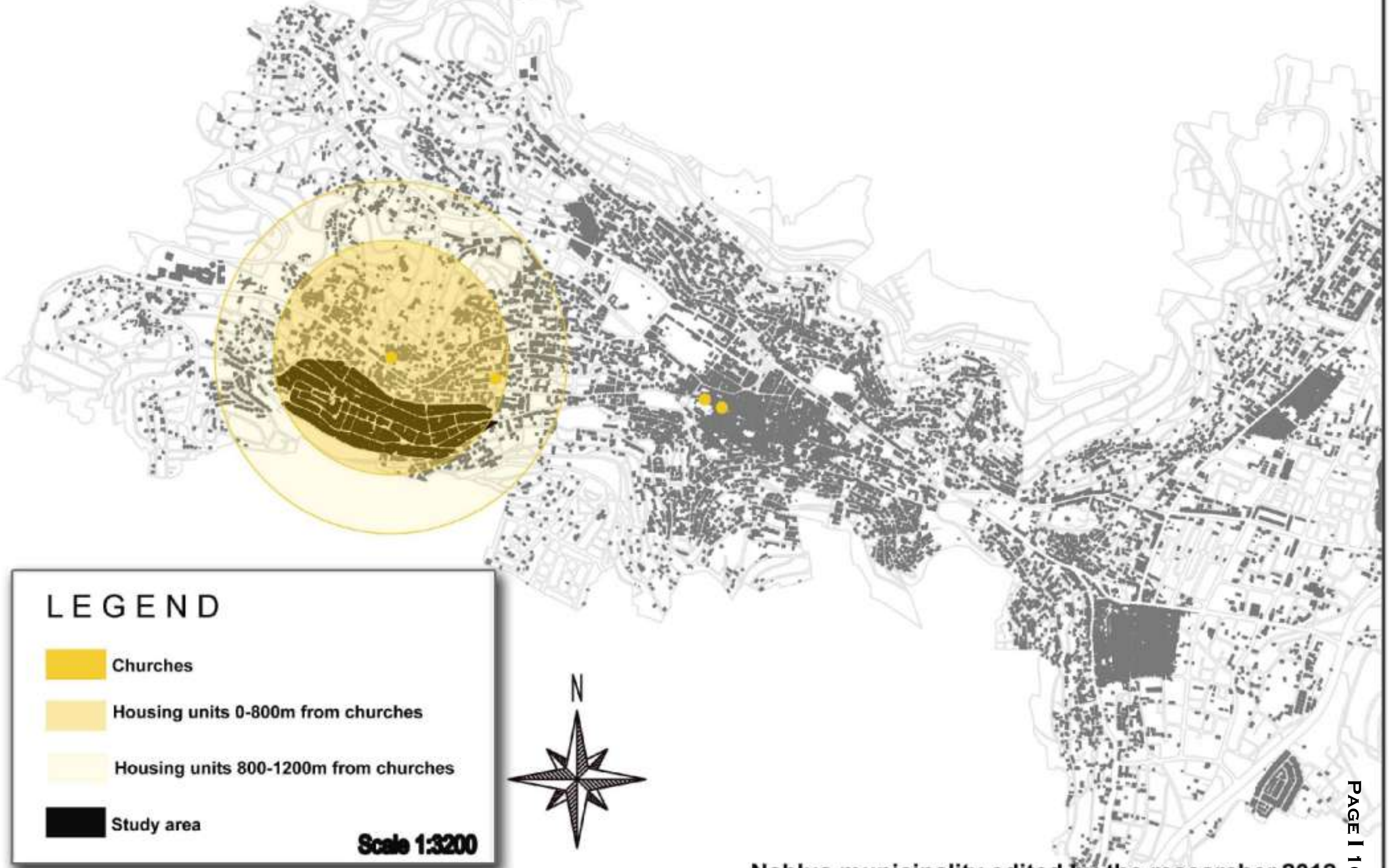
MOSQUES CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (6-56)

CHURCHES CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (6-57)

CAFES CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (6-58)

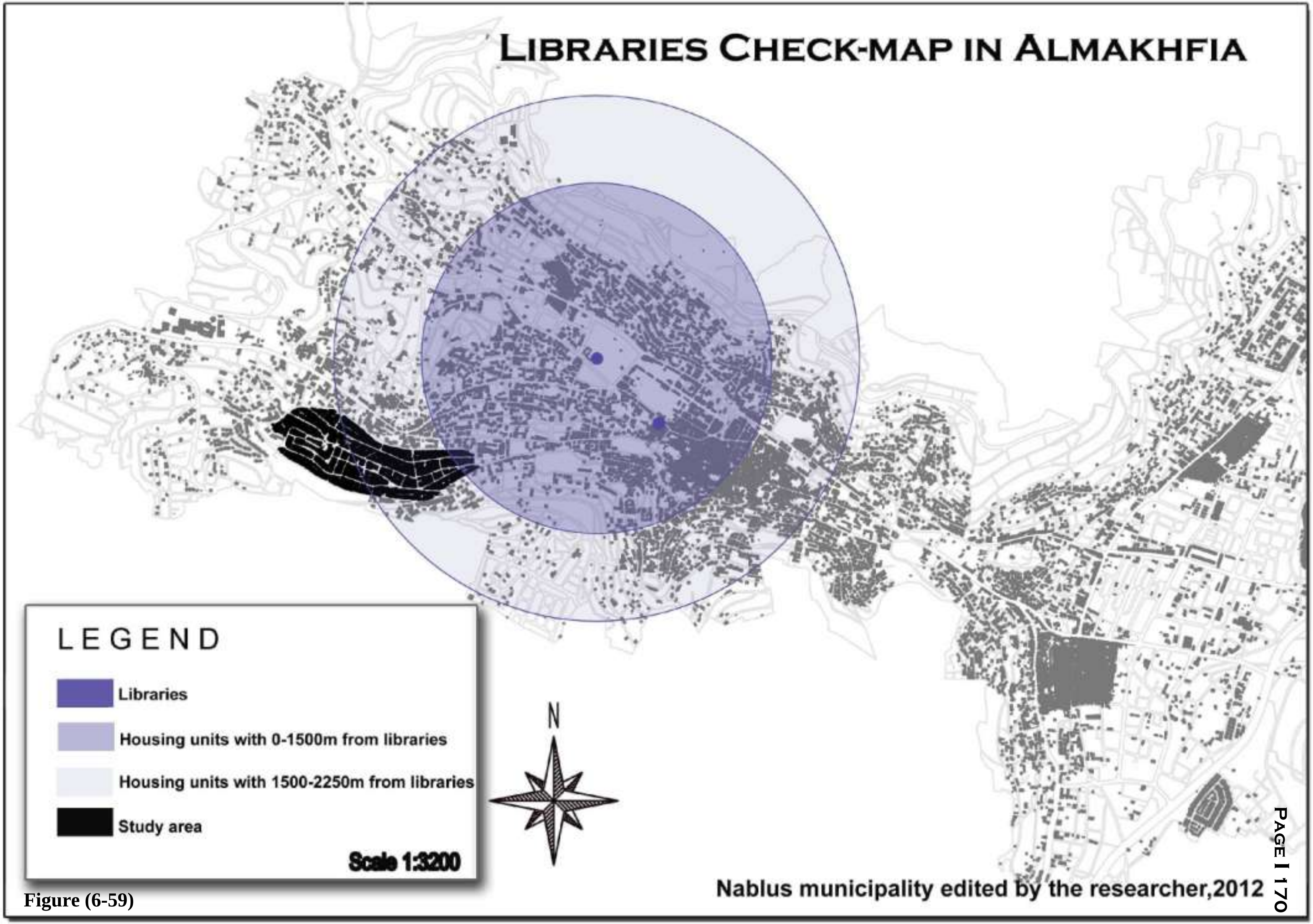

LIBRARIES CHECK-MAP IN ALMAKHFIA
LEGEND
Libraries
Housing units with 0-1500m from libraries
Housing units with 1500-2250m from libraries
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-59)

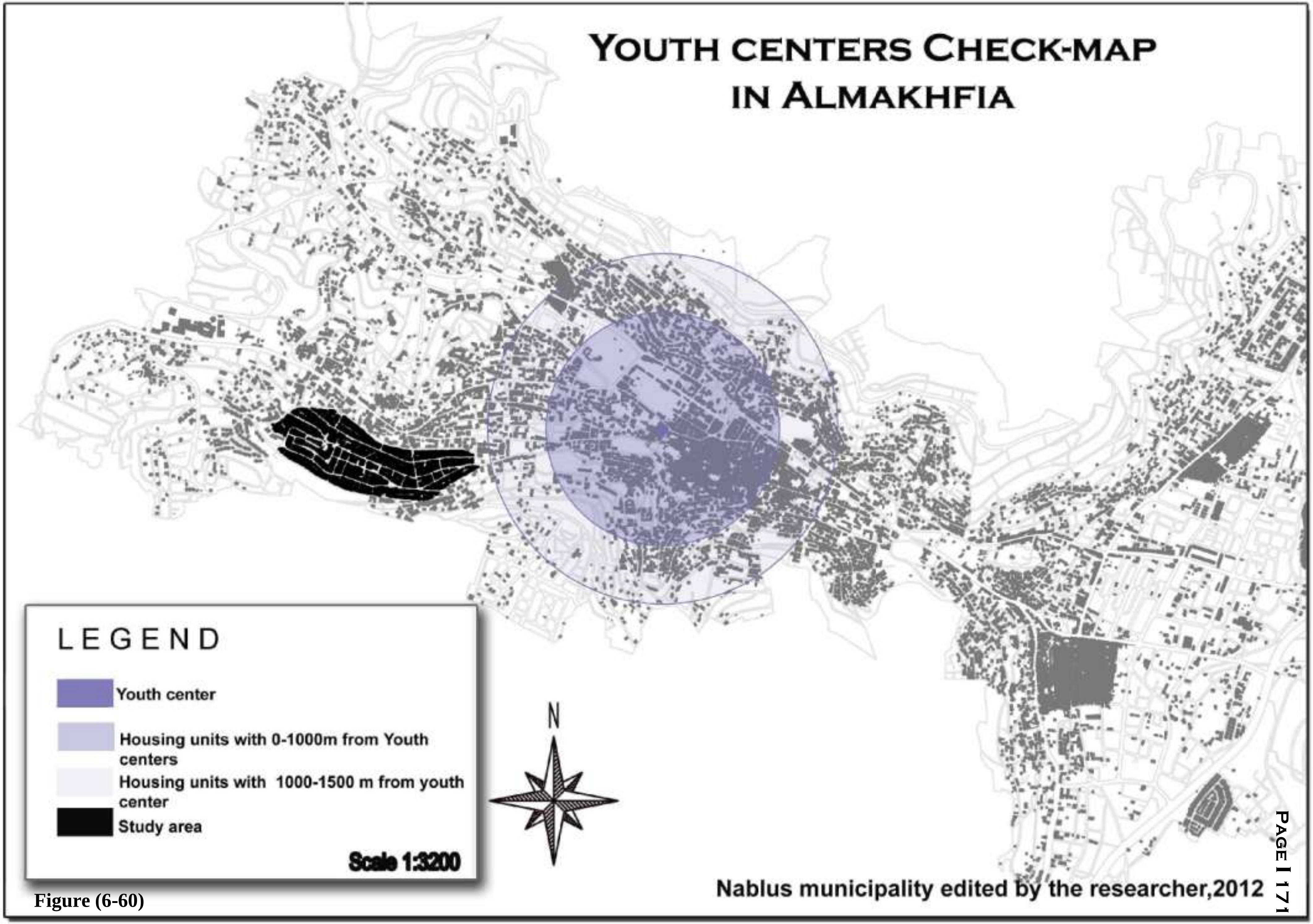
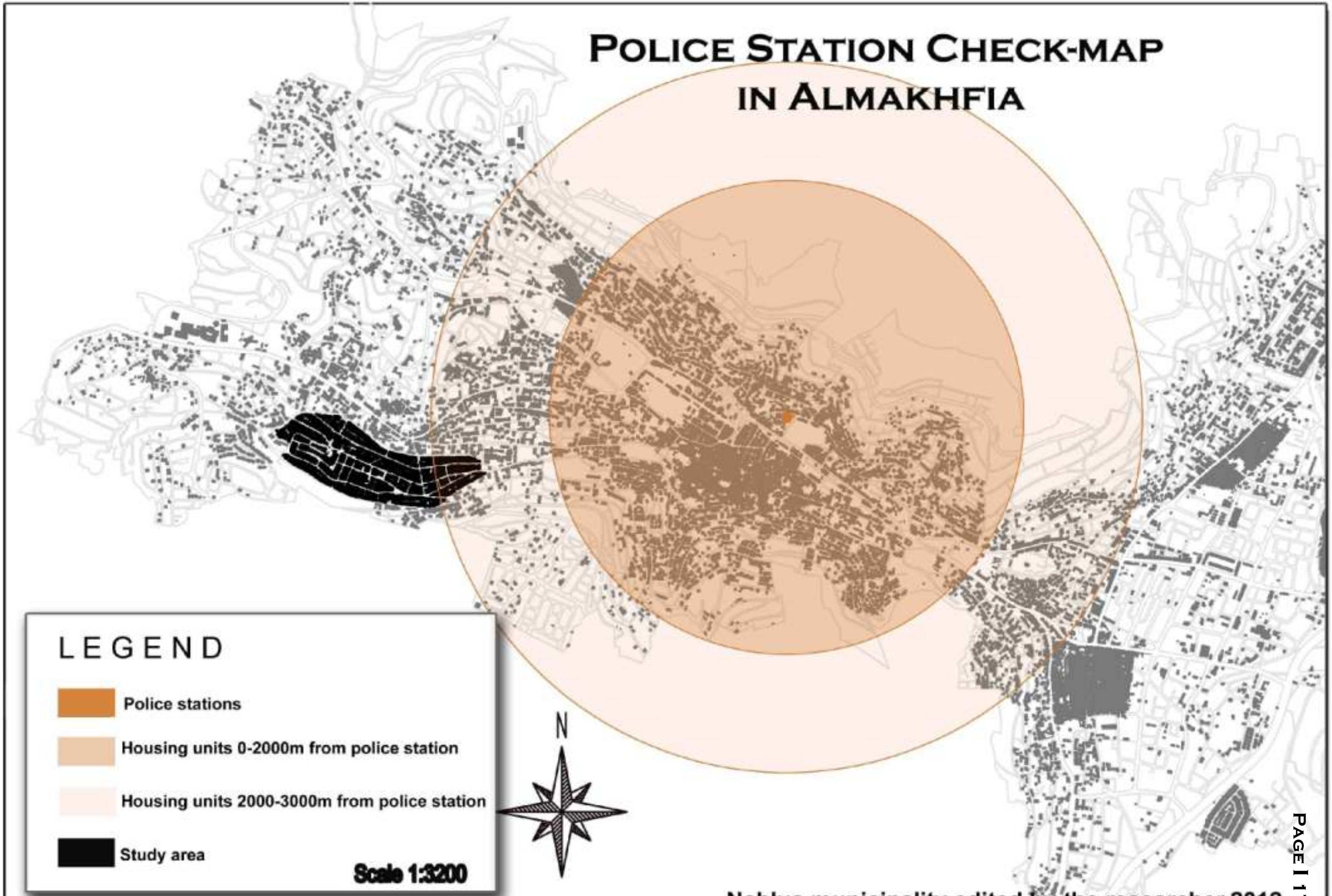
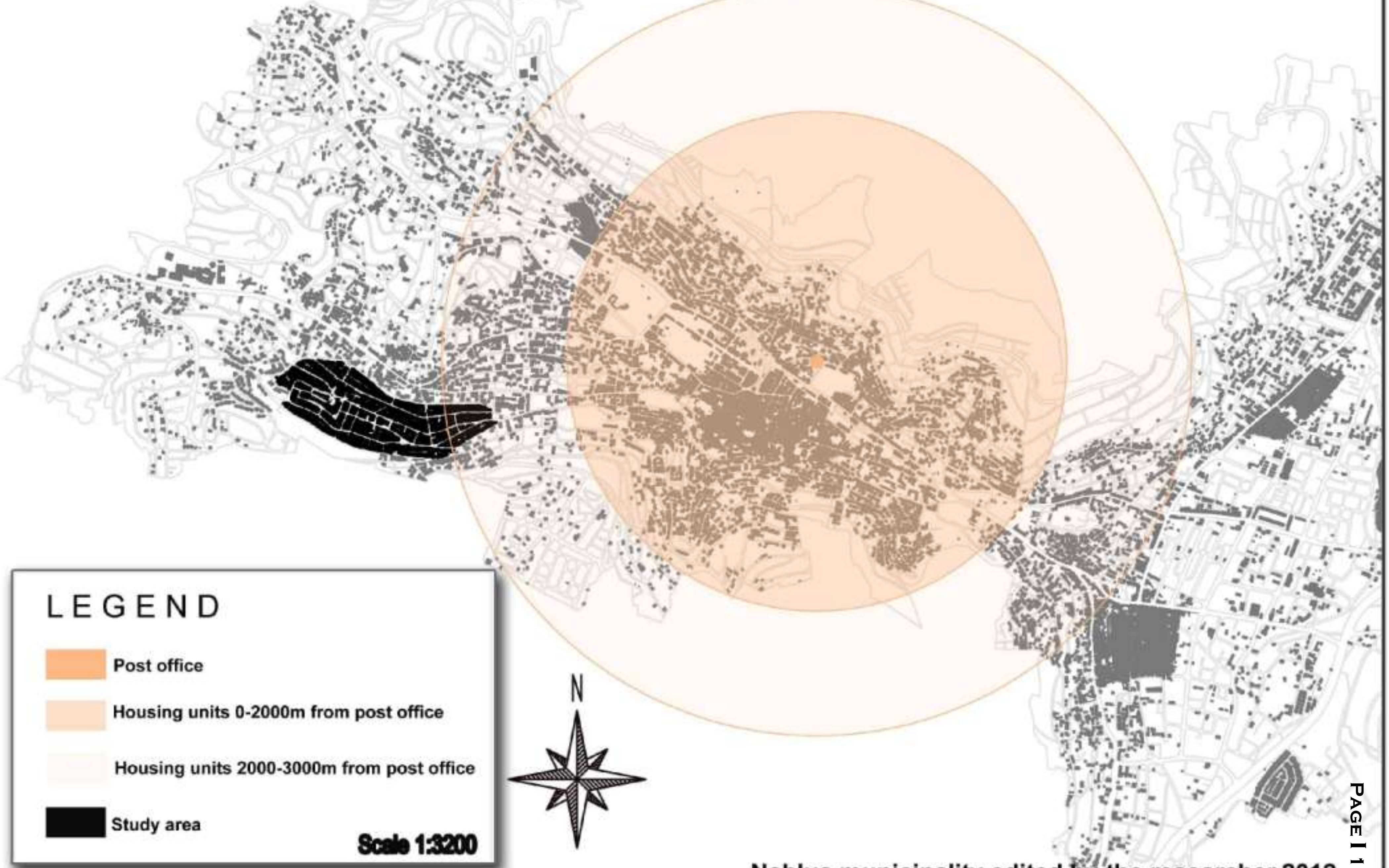

YOUTH CENTERS CHECK-MAP
IN ALMAKHFIA
LEGEND
Youth center
Housing units with 0-1000m from Youth centers
Housing units with 1000-1500 m from youth center
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-60)


POLICE STATION CHECK-MAP
IN ALMAKHFIA
LEGEND
Police stations
Housing units 0-2000m from police station
Housing units 2000-3000m from police station
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012
Figure (6-61)

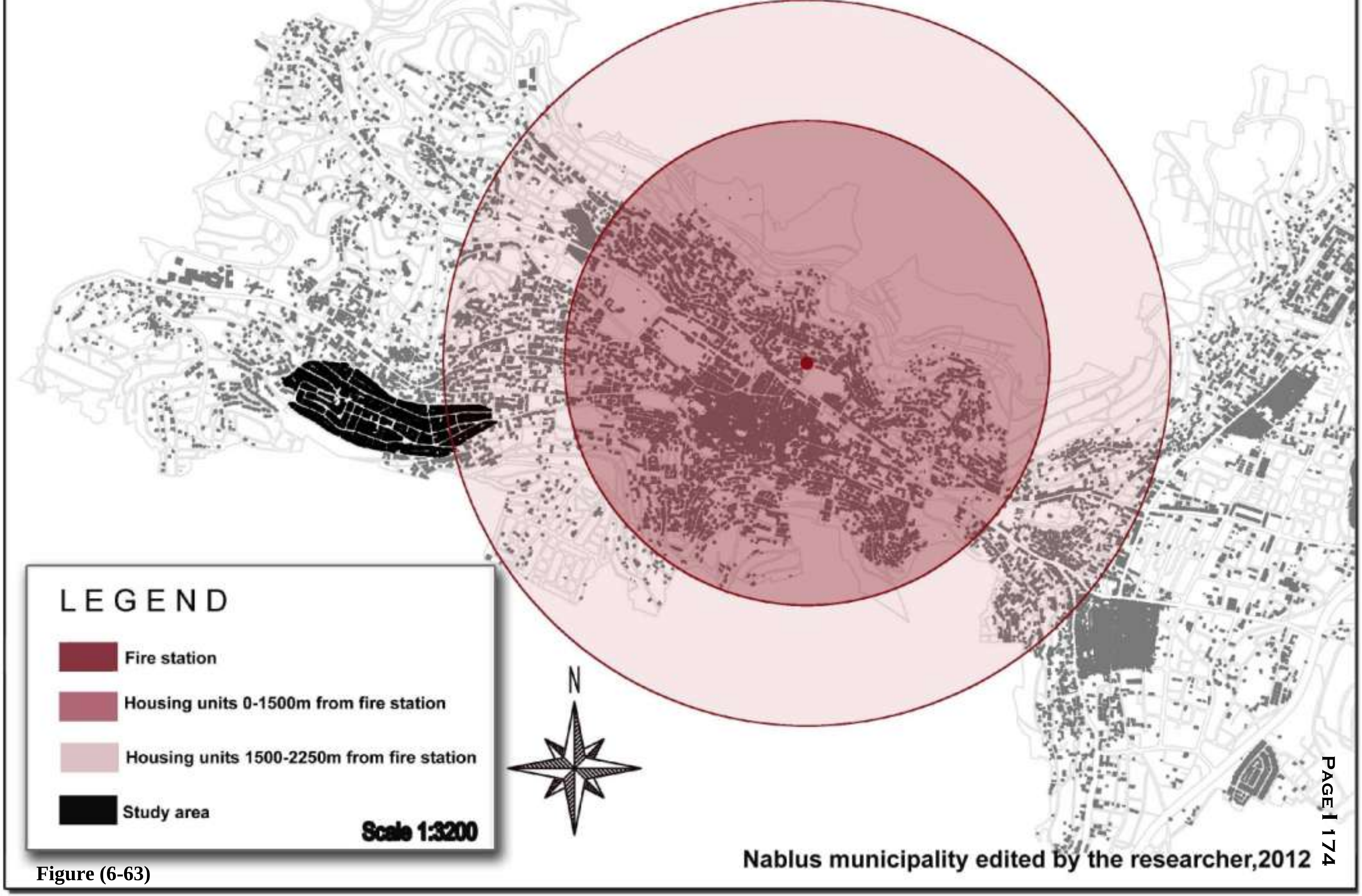
POST OFFICE CHECK-MAP IN ALMAKHFIA



Nablus municipality edited by the researcher,2012

Figure (6-62)

Fire Station Check-map in Almakhfia



Nablus municipality edited by the researcher,2012

Figure (6-63)

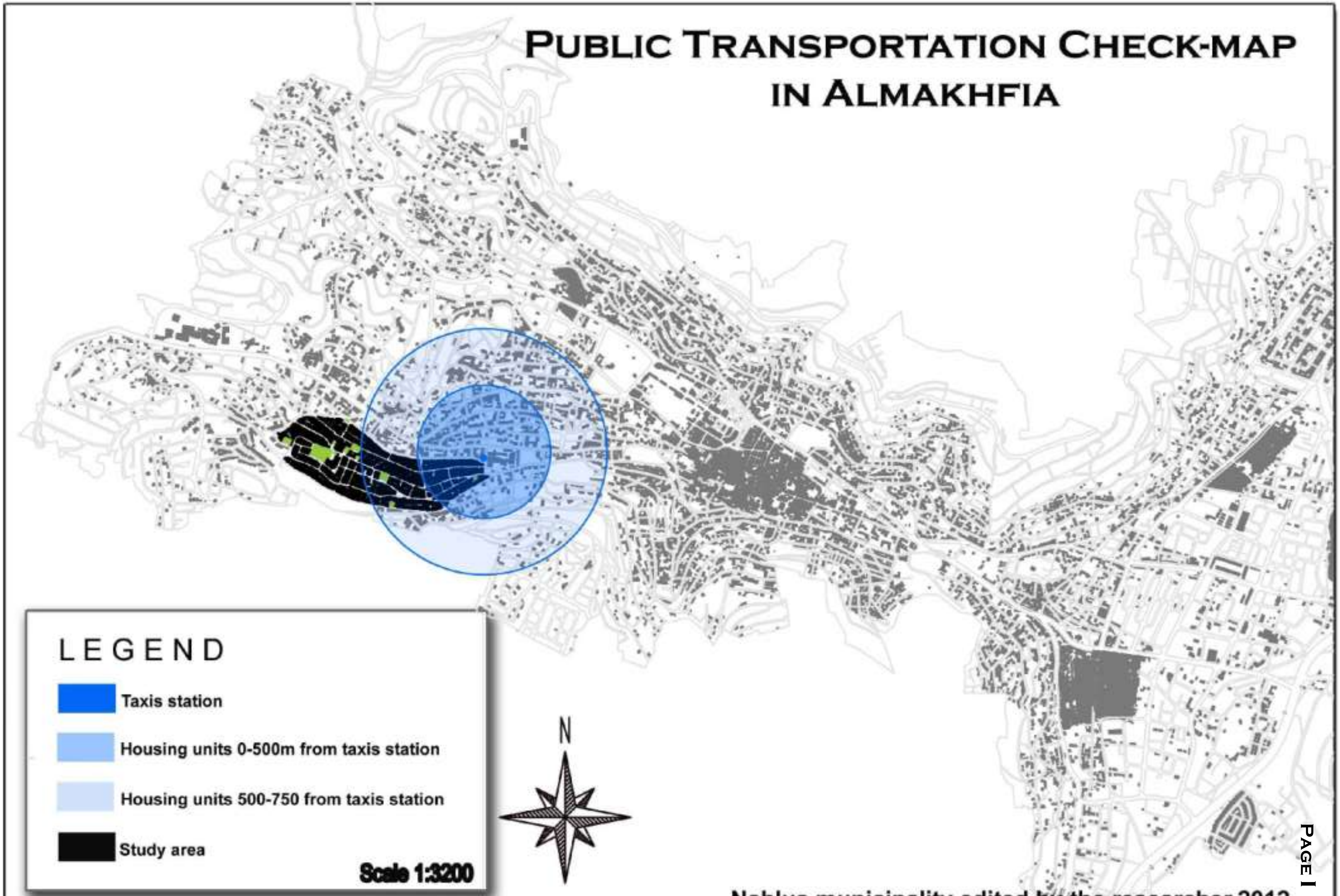

PUBLIC TRANSPORTATION CHECK-MAP
IN ALMAKHFIA
LEGEND
Taxis station
Housing units 0-500m from taxis station
Housing units 500-750 from taxis station
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-64)

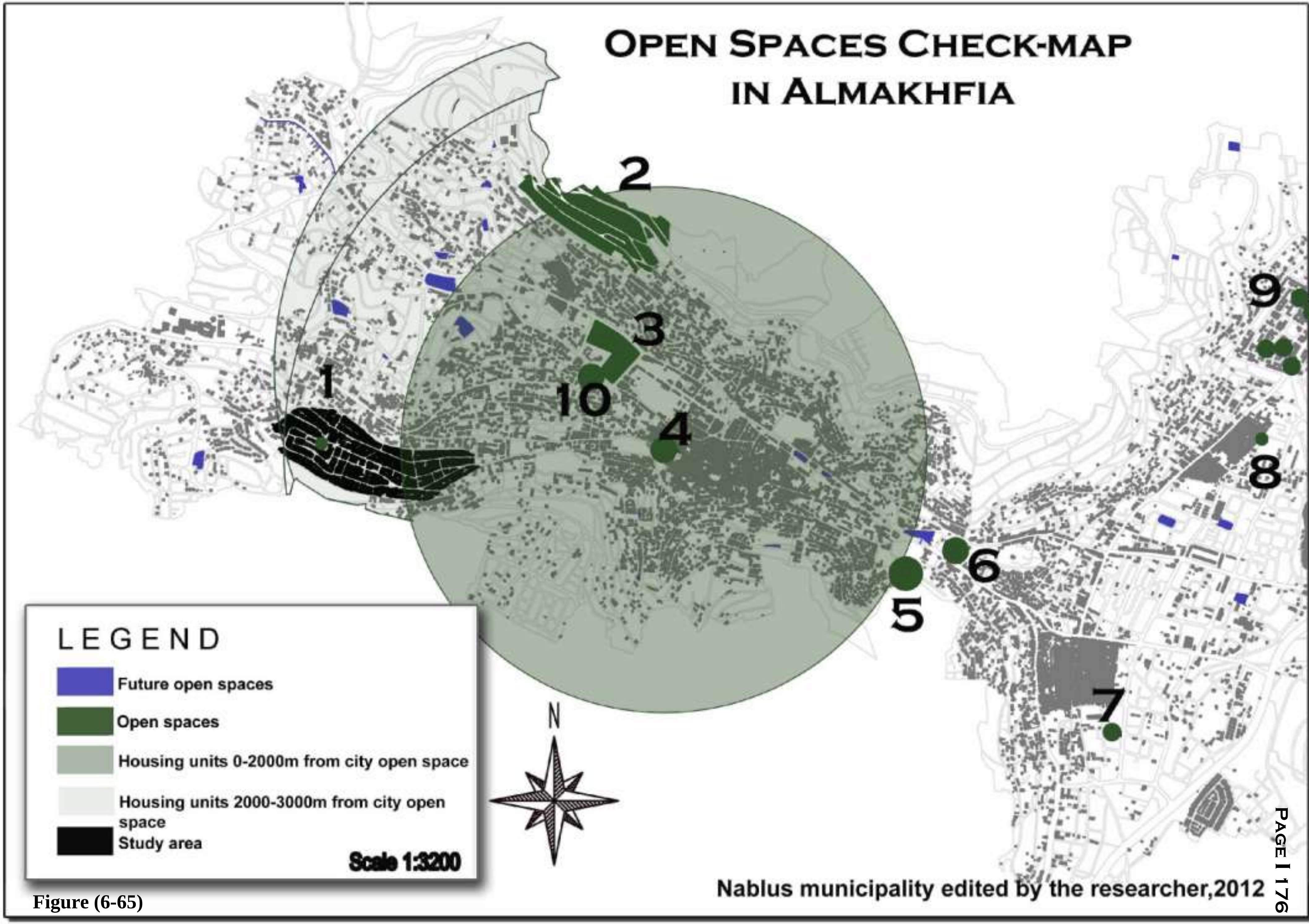

OPEN SPACES CHECK-MAP
IN ALMAKHFIA
1
2
3
4
5
6
7
8
9
10
N
LEGEND
Future open spaces
Open spaces
Housing units 0-2000m from city open space
Housing units 2000-3000m from city open space
Study area
Scale 1:3200
Nablus municipality edited by the researcher,2012

Figure (6-65)

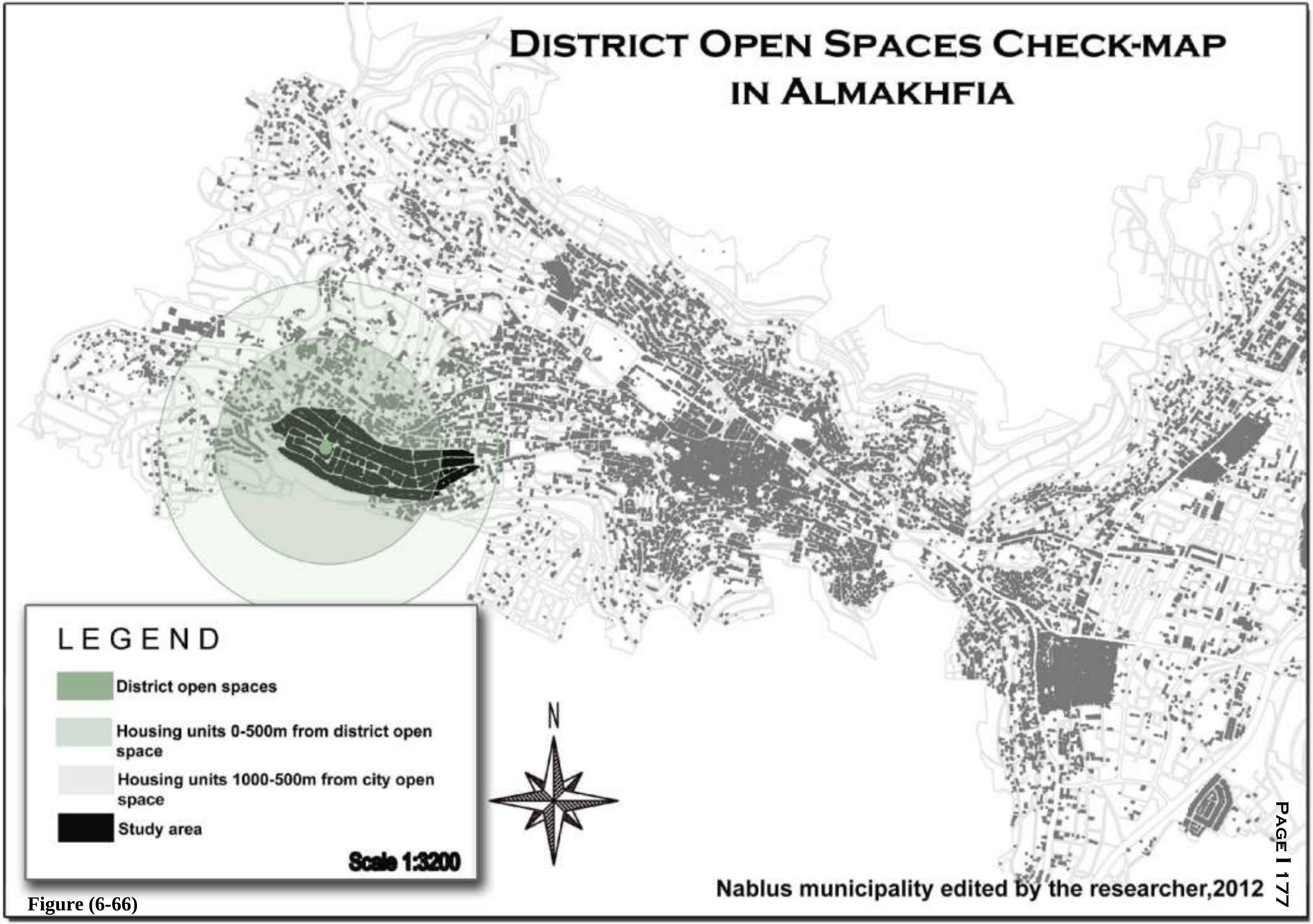

DISTRICT OPEN SPACES CHECK-MAP
IN ALMAKHFIA
LEGEND
District open spaces
Housing units 0-500m from district open space
Housing units 1000-500m from city open space
Study area
Scale 1:3200
N
Nablus municipality edited by the researcher,2012

Figure (6-66)

Contents

Results and discussions

Based on the comparison between the model developed from the international housing qualities on one hand and the local housing qualities on the other, high housing deficiencies have been revealed in both cases.

Table(6-1): Overall objective housing quality score in Khallet Aladas.(the researcher,2013)

Categories	Spatial Qualities	Social facilities	Open spaces	Total
Expected minimum score	30	15	2	47
Mean score	28.4	7.7	0.85	37.7
% of housing units below the minimum score	28.9	100	100	95.6
% of housing units with the minimum score	-	-	-	-
% of housing units above the minimum score	71.1	-	-	4.4

The aggregation of housing quality scores in Almakhfia reveals that all housing units have a quality score below the minimum required score. None of the surveyed housing units satisfied special housing qualities, social services, and open spaces. Table (6-2) gives the mean score of overall housing quality in

Almakhfia which is a very low score at 14.7.

Table(6-2): Overall objective housing quality score in Almakhfia.(The researcher,2013)

Categories	**Urban design**	**Social facilities**	**Open spaces**	**Total**
Expected minimum score	30	15	2	48
Mean score	11	6.9	0.88	14.68
% of housing units below the minimum score	100%	100%	100%	100%

From previous tables, it is found that there is a significant difference between the mean scores of Khallet Aladas and Almakhfia as shown in table (6-3).

Table (6-3): A comparison between Khallet Aladas and Almakhfia for spatial qualities deficiencies of each indicator. (The researcher, 2013).

The indicators		Khallet Aladas	Almakhfia
Housing height/site coverage		72.5%	87%
Housing height/street width		82.6%	81.9%
Orientation		50.8%	56.6%
Lot area/ housing unit	SH	31.4%	52.8%
	AH	82.6%	47.9%
	RB	96.6%	97.6%
Setbacks	Front	75%	98.8%
	Right	26%	74.7%
	Left	22.6%	70%
	Rear	73.3%	91.5%
Parking		1191 /82.8%	653/99.7%

Connected to the streets	87.4%	84.3 %

In addition to that, each indicator has been compared to the indicator adopted in the model proposed in chapter five, and it has revealed a high deficiency in each indicator with almost equal amount for both cases. for the purpose of proper analysis, it is evident to discuss each indicator of spatial housing qualities and social services individually since some housing units of Khallet Aladas have very high mean scores which raised the total mean score of the neighborhood and made it look like it’s better than Almakhfia.

The beginning of the research has showed that both cases were selected to express two different levels of socio-economic status: Khallet Aladas as a high class neighborhood, and Almakhfia as a middle class neighborhood. Still, findings were close in both cases for all special qualities indicators except side and rear setbacks which can be refered to the different socio-economic structure of the community. However, the high deficiencies in both neighborhoods can be referred to the following:

The comparisons show spatial housing deficiencies in term of setbacks, heights, high numbers of housing units, and high site coverage percentage. It can be referred to different social structures of both cases. it is important to understand more profoundly the social structure of communities and its implications on the spatial development (Coon, 1997). Khallet Aladas is mainly developed in form unrelated to the traditions of local communities, and it is directed by private investments which tend to maximize the profits by over-utilization of lands. However, Almakhfia is developed by its original owners who added and extended

their housing units to house their children's families or to offer housing units for renting to Al-Najah students without a clear regulatory reference.

The percentages of housing units that have deficiencies in term of orientation indicator are almost similar in both cases. Based on site visits, reviewing the outline plans of two cases, it is noticed that orientation deficiencies could be referred to constructing housing units according to topography contour lines and plot parcellation. No good designs are given to maximize the benefits of sun and fresh air access.

The high deficiencies of plot areas per housing units can be related to private investments and land with high prices, the private investors have built a large number of units within the same buildings. At the same time, municipalities are not able to widen streets because of the land ownership which they cannot pay for (An engineer from Nablus Municipality, 2013 ;The Head of Ramallah Municipality , 2012). Consequently, large buildings are built with flawed proportions in comparison with their surroundings and the streets.

Ramallah's residents consider Khallet Aladasas, a part of Atteira area and Ramallah city, for high prestigious people which make it an attractive point for renters. Some would follow their irrational feelings to seek social validation in renting in Atteira without caring for quality. Almakhfia is very close to Al-Najah University which also put it in the context of demographic pressures.

Parking deficiencies are significant in both cases. The deficiencies of parking in Khallet Aladas arise from building apartments on designated parking areas to

profit from the difference in the cost of maintaining apartments and the fine of parking (The Head of Ramallah Municipality , 2012). Still, Almakhfia's people tend to transform parking area to shops and storage which can be clearly noticed from field observations. Besides, some parking designs are inefficient increasing deficiencies and street congestions.

At social level, the analysis followed observations obtained from field survey and reviewing the maps of the both cases:

1. The existing health and education services are serving more housing units in Almakhfia than in Khallet Aladas including elementary and secondary schools, as well as the directorate of health within the study area of Almakhfia.

2. The shops are generally located at the ground floor of housing buildings at Khallet Aladas and Almakhfia which explains its ability to serve most of both cases.

3. Mosques are constructed by local funds coming from the communities. Almakhfia has higher number of mosques than Khallet Aladas, which could be referred to the percentage of Muslims in Almakhfia and their willingness to build mosques. Besides, there are no churches located within both study cases.

4. Based on an interview with two local citizens (Local citizen, 2014) and observations through living in West Bank, the political instabilities have pushed people to invest in cafes and housing constructions. The phenomenons of cafes' investments have changed the life style of the community, especially in Khallet Aladas (Atteir in general) where attending cafés have become a new trend for

people. Besides it could be considered as a substitute for open spaces and green areas. However, the cafes of Almakhfia aim to serve Al-Najah students, where cafes have smaller areas than those in Khallet Aladas.

5. Services such as post offices, police stations, fire stations and cultural services (e.g libraries) cannot serve the growing urban population in Almakhfia and Khallet Aladas because they are located in the city centers of Ramallah and Nablus making it difficult to extend these services to those extensions.

6. The significant deficiencies of open spaces in both cases can be referred to the lack of public ownership (An engineer at the Ministry of Local Government, 2013), high prices of land which municipalities cannot afford, and intensive investments which result in imperfect proportion of urban areas to existing landscaped green areas and open spaces.

Finally, the construction of most of the social services in Palestine such as schools and hospitals depends on funds from international non-governmental organizations which do not meet the exact desires and needs of the local municipalities.

Table (6-4): The summary of the social services analysis. (The researcher,2013).

The indicator	**Khallet Aladas**	**Almakhfia**
Educational services	Kindergarten: Distances 50% Capacity (-) Elementary school distance (81.2%) Capacity(-) Secondary school distance	Kindergarten: Distances (15.5%) Capacity (-) Elementary school distance (22.2%) Capacity(-)

	(51.7%)and (59.6%) Capacity(+)	Secondary school distance(0) Capacity(-)
Health centers	Clinics: Distance (100%) Capacity(-) Hospitals: Distance (80.5%) Capacity(+)	Clinics: Distance (4%) Capacity(-) Hospitals: Distance (3.6%) Capacity(-)
Shops	Daily shops: Distance (1.8%) Capacity: (+) Weekly shops: Distance(0) Capacity: (+)	Daily shops: Distance(0) Capacity: (-) Weekly shops: Distance (100%) Capacity: (-)
Religious facilities	Mosques: Distance (21.8%) Capacity: (-) Churches: Distance (100%) Capacity: (-)	Mosques: Distance (100%) Capacity: (+) Churches: Distance(0) Capacity: (+)
Cafes	Cafes: Distance (2.4%) Capacity: (+)	Cafes: Distance(0) Capacity: (-)
Cultural centers	Library: Distance (96.3%) Capacity: (+) Youth centers: Distance(0) Capacity: (-)	Library: Distance (96.2%) Capacity: (+) Youth centers: Distance(0) Capacity: (-)
Other facilities	Post office: Distance (75.6%) Capacity: (-) Police station: Distance(0) Capacity: (+) Fire station: Distance (100%) Capacity: (-)	Post office: Distance (100%) Capacity: (-) Police station: Distance (100%) Capacity: (-) Fire station: Distance (100%) Capacity: (-)

Public transportation	Distance (21.1%)	Distance (78.5%)
Open green spaces	District: Distance (76.8%) Capacity: (-) City: Distance (63.7%) Capacity: (-)	District: Distance (78.6%) Capacity: (-) City: Distance (80.4%) Capacity: (-)

It is important to note the interviewees' points of view which demonstrated some important issues about the existing deficiencies of housing qualities in Palestine. Their opinions have supported the results of the study. The interviews have raised the main contributions of the deficiencies in housing qualities in Palestinian urban areas, what are the major deficiencies, and how could it be solved. The ten interviewees have showed a deep understanding about the topic because of their activities, responsibilities, and education. They are working at different private and governmental institutions. The findings of the interviews can be mainly summarized into the following:

- **At spatial level:**

1. An architect- who lives in Nablus- the construction of bulk buildings ceasing the surrounding landscaped spaces and social relations. It is suggested to prevent buildings large number of floors to avoid producing buildings that have so many apartment units.

2. An engineer- who lives in Atteira close to Khallet Aladas- The large number of flats per a housing building exceeds the number of existing parking stops. Consequently, cars are stopped at streets and setbacks'

spaces resulting in visual pollutions and congestions. Moreover, cafes are being constructed within dense residential areas without providing enough parking stops; it has increased the pressure on street capacity.

3. An architect- who is a mother for two kids- found that the main problem is the lack of playgrounds for children around housing buildings; children usually spend their time at houses or play at streets.

4. An engineer in the ministry of local work found that most housing buildings are not related to the needs of local communities, the existing housing buildings have caused the deterioration of identity. He also pointed to the period of cooperative housing association when some people were responsible for the construction of the housing, and different types and areas of housing units were built to satisfy their owners.

5. Most interviews focused on the lack of green elements in streetscape which could raise the overall quality and aesthetics of the neighborhoods.

6. An architect in Ramallah Municipality has emphasized on the parcellation division plan; he claimed that it have led to inefficient use of lands. In his opinion, the review of parcellation will help much to house the increasing number of population due to the critical situation of Palestine.

- **At the level of social services:**

All the interviewees have agreed on the lack of social services and open spaces at a neighborhood level. There was an emphasis to consider

kindergarten, elementary schools, good quality of daily shops, gardens, and playgrounds at neighborhoods. The focus on these services is associated with the youth community fact.

The findings of the objective approach are compatible with the main points obtained from semi-structure interviews.

Conclusion

Comparing to international housing qualities, very significant housing deficiencies are found at spatial housing qualities and social services. Existing urban spatial housing qualities don't consider housing density, housing typology, street widths, orientation, and housing heights and its relation to street widths and lot coverage. However, existing spatial qualities failed to meet the minimum suggested ones, in particular with setbacks. In other words, the international spatial housing qualities are based on housing typology and density to regulate housing developments and to provide different zones; it focuses on context rather than on separate buildings.

For social facilities, existing capacities and locations of social facilities in Palestine do not consider the future urban growth and their capacities are deficient for now (2013) and the year (2025). Services are not located by maximum walking distances. The shortage and the absence of social services in the residential neighborhoods created additional problems such as high congestion in the inner core of the city where services are concentrated. One additional problem is the absence of open spaces especially for children because there are no

sufficient lands limited to open space use; the playgrounds of schools are not easily accessible and setbacks' areas have been transformed to parking.

The existing deficiencies of housing qualities can be referred to some contributions ranging from economic, social, political, and regulatory:

- Rapid urbanization due to the increasing number of immigrants and the natural increase of population have imposed new challenges and implications in Palestinian urban context in term of housing qualities at different levels. The whole process caused the deterioration of spatial housing qualities and social services. Investors tended to control urban development and to provide additional housing units to meet the housing quantity at the expense of social services and open spaces.
- In addition to rapid urbanization challenges and implications, Palestine has special political instabilities which have caused the deterioration of housing qualities through imposing physical, administrative and regulatory practices. Israel has imposed many military orders to control urban growth in Palestinian cities like demolition orders, physical barriers, and movement restrictions. Due to that, Palestinian cities have witnessed over-concentration of population, and over vertical constructions which lacked from the required social services. Besides, such constructions give no account to the importance of providing yards, green areas, and playgrounds.
- The lacks of resources, funds, and public ownership have weakened the role of Palestinian administrative institutions to overcome the urbanization problems.

- Societal needs and desires of the individuals in the society are not met due to weak planning that arises from poor communication with local authorities and the weak role that is played by local communities in the planning process. Cooperation housing projects in Palestine presented good examples on housing that meet the desires of individual and that explains its success at a certain past time (An engineer at the Ministry of Local Government, 2013)

- The inherited urban housing quality regulations are inappropriate, inflexible and ineffective to tackle housing qualities problems at city and neighborhood level. They remain in force starting since the British Mandate and the subsequence of the Israeli occupation. Besides, urban planners have not developed new housing qualities regulations.

- Outline plans are the same for all urban areas in Palestine; they are irrelevant to the socio-economic situation and physical characteristics of each area. Moreover, the parcellation division plans must be reviewed in a way could achieve efficient use of lands (The Head of Ramallah Municipality , 2012).

- The land onwership is listed as one of main problems in Palestine, which has doubled the national development effort. It even have become worse because of military ocuupation which have caused uncertain, complex, and highly fragmented patterns of land onwership; much land is controlled by muliple forms oof onwers. Therfore, very scarce land is in public onwership, and land prices are rising (Coon, 1997).

- The only reference of the social services developments is the master plan of cities (An engineer at the Ministry of Local Government, 2013). It should be

mentioned that all social facilities including educational, health, entertainment, cafes, cultural, religious, police, fire, and post centers are within public buildings zone. However, planning regulations are applied at a city level and do not consider neighborhood level. As a result of that, there is a high deficiency of social facilities at a neighborhood level. Existing planning work fails to achieve a homogeneous and efficient development and distribution of social facilities.

Recommendations

Improving housing qualities is a continuous circle between different parts who are involved in the housing development process. It consists of: the planning authority, existing planning regulations and standards, the applications, planners, architects, and investors.

- Continuous coordination and mutual consultation between competent authorities including the Ministry of Local Government, the Ministry of Housing, and municipalities is urgent to avoid duplicating work and time. Plans must be prepared by different authorities in line with public participation to reflect the community needs. The local councils should adopt flexible and well- understood urban housing quality standards to those who will implement the plans. Information, models, technical studies should be conducted to develop the concept of urban housing quality over the entire city.
- The competent authorities should study and review existing housing qualities regulations of Palestinian cities to overcome existing deficiencies and gaps, and to have good housing qualities that achieve a homogeneous urban environment.

- Palestinian planning regulations are applied in city level and do not consider neighborhood level. This research has almost covered some points to raise housing qualities in terms of spatial housing qualities and social services at a neighborhood level focusing on:

1. The housing planning in term of spatial housing qualities must be improved based on housing density and typology which are not existent in Palestinian cities.
2. The lot area should depend on the housing density area, the number of housing units, and housing type; there is no restriction for the number of housing units within Palestinian urban neighborhoods.
3. Housing heights restrictions is based on housing typology and intensity in the first place, then lot coverage and access widths. However, Palestine regulates maximum housing heights according to the residential regulatory zones (A, B, C) with no reference to other indicators.
4. Lot coverage standard in the model mainly depends on housing types which is not applied in Palestine.
5. In Palestine, no standards regulate the orientation of the residential buildings even though some researchers have suggested the best orientation to be East-West.
6. Setbacks must be dealt with as a function of proportion between housing buildings and its surroundings.
7. Achieve gradient housing heights to allow the entry of air and sun and to provide healthier inside environment.

8. Maintain the aesthetic topography of the cities through organizing the housing heights.

9.The level of visual quality in residential areas should be raised by focusing on green elements which attract people.

10. Grocery shops and religious services are allowed to be built on designated residential areas whilst social services such as schools do not have clear considerations on their location area at a neighborhood level.

11. Stairs and pedestrian roots should be redesigned to be more attractive for daily use.

- To improve the urban housing qualities at spatial and social levels, further studies about the surrounding environments of the study area must be conducted. Housing quality standards should be based on aesthetic, functional, social, and environmental requirements for each area to preserve the urban fabric.
- To prevent arbitrary constructions and to insure that the required number of services and parking are met, the municipality should enforce binding laws such as high fines and to cease construction when the law is broken.
- Housing qualities must be well defined to provide a concrete floor for investors not to fall below. Besides, investors usually provide public buildings and services at a city level which increased the deficiencies at a neighborhood.
- Architects are very responsible of the low housing quality in Palestinian cities; they have to mediate with investors and to provide clever solutions that satisfy all stakeholders, considering the local environment, topography, identity, and people needs. In worse case, architects should refuse to design cheap buildings which are

irrelevant to our context and deteriorating our environment.

- This study highlighted one aspect of housing quality through an objective approach in terms of spatial housing qualities and social services. Further studies can be conducted considering social and economic aspects with a subjective approach.

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Appendix (1):

Assume that the housing have front setbacks equal to 4m .

The optimum front setback is 5.5m

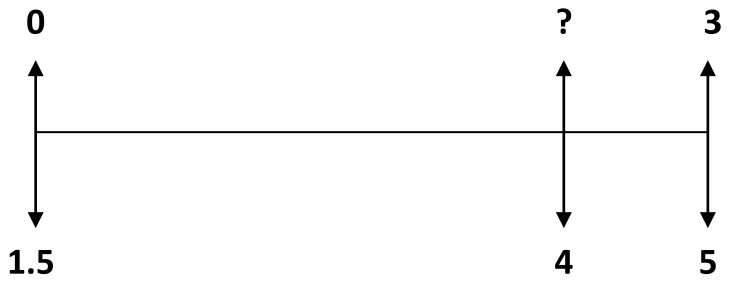
The least setback among all setbacks is 1.5

Then,

The highest score which equals to 3 is given to 5.5m

The zero score is given to 1.5

We have to find the score of 4m front setback. As following:



5-1.5=3-0

4-1.5=X X= 3*2.5/3.5 =2.14

Appendix (3): H/C that meet the suggested score in Khallet Aladas.(The researcher,2012)

Street width	Number and percentage of housing unit in area A			Number and percentage of housing unit in area B			Number and percentage of housing unit in area C			
	Total	# of meet the suggested score	%	Total	# of meet the suggested score	%	Total	# of meet the suggested score	%	∑
SH	19	5	26.3%	17	4	23.5%	30	12	40.0%	4.2%
AH	3	1	33.0%	1	1	20.0%	19	5	26.0%	13.8%
RB	97	1	1.0.%	147	99	67.0%	173	11	6.0%	21.9%
Total	119	7	58.8%	165	104	63.0%	222	28	12.6%	27.5%

Physical indicators	factors	British/ Manchester/ Oxford			America/ Kansas/Maize				Iraq			
density	Housing type	Low density - Single detached housing <25 units/ha	Medium density – single and two family Residential buildings 25-50 units/ha	High density- single family, multi family housing 49-74 units/ha	Low density 35 dwellings/ha	Medium density 43 dwellings/ha	High density 70 dwellings/ha-	High density >70 dwellings/ha-	Low density 13-21 dwellings / ha- Single housing	Low density 18-27 Semi detached housing	Meduim density- Detached housing 24-48 dwellings /ha	High density – multifamily housing 40-120 dwellings/ ha
Housing layout	Plot size	557-697m^2/unit	557-604m^2 for detached+single housing 139 m^2/ each additional unit after third unit	697m^2 for 3multifamily housing 139 m^2/ each additional unit	464-557m^2	325m^2/single house 279m^2 / unit attached housing	232 m^2/ unit housing 139 m^2/ each additional unit after third unit	139 m^2/units	400-600m^2	300-400 m^2	200-350	-
	lot depth	22m	22m	15m	15	15	10.6	10.6	16-24	10-20	5-10	-
	lot coverage	50%	50%	For single housing 75%	30%	40%	40%	45%	30%	45%	60%	-
	Housing height	10.7m	10.7m	13.7m	10.7m	10.7	13.7m	13.7	10.5m	10.5m	10.5m	12
	Setbacks											
	front	6m	4.5m	3m	7	7.6	7.6	7.6	4	6	6	-
	Rear	9m	6m	6m	6	6	6	6	4	5	5	-
	side	3m	3m	3m	1.5-4.5m	3.7-4.5	1.8 or 6 on the street	1.8 or 6 on the	1.5-4	3	3	-

- **Appendix (2): Standards' Comparison**

							side	street side				

- There is a significant match between UK and Iraq setbacks and heights, which could be referred to the British mandate period. The British regulations were transformed to Iraq.
- There is a difference between UK and Iraq densities.
- There is great difference between densities and setbacks of UK and America. While British regulations support high densities and mix use to develop sustainable communities, American regulations encourages the idea of free standing buildings.

Kevin Lynch matrix illustrates the relation between densities and heights; this matrix is similar to Iraq standards where different range of densities and buildings heights are almost the same, especially in moderate density area

	Kein Lynch	Iraq	Kein Lynch	Iraq
Housing density	High (over 50%)	Over 60%	10-50%	45%
Housing height	Over 18m	No max	Over18m	10.5m
Housing Type	-	multifamily housing	High slabs	Semi detached housing
Housing height	9-18m	10.5m	9-18m	(Density 30%) 10.5m
Housing Type	Ground-access walk-ups	Detached housing	Ground-access walk-ups	Single housing
Housing height	3-6m	-	3-6m	-
Housing Type	Courtyard housing	-	Attached houses	-

sical indicators	factors	MODEL			
density	Housing type	Low density <25 units/ha	Medium density –single and two family Residential buildings 25-50 units/ha	High density- single family, multi family housing 49-74 units/ha	High density- single family, multi family housing >74 units/ha
Housing layout	Plot size	557m²	278m²/unit Attached housing 557 m²/unit –single housing 139 for each additional unit	697m² /3 multifamily housing 139 m²/ each addional unit after 3	139m² /unit
	lot width	24m	22m	18m	18
	lot coverage	30%	40%	For single housing >50%	For single housing >50%
	Housing height	10.7m	10.7m	14m	>14
	Setbacks				
	front	5.5m	4.5m	6m (1m for each additional floor store)	1m for each additional floor store
	Rear	6m	6m	5m(1m for each additional floor store)	
	side	4m	3m	3m (1m for each additional floor store)	

Appendix (4): Width of access road in Khallet Aladas.(The researcher,2012)												
Street width	Area A			Area B			Area B			Total		
	Height range	#	%	Height range	#	%	Height range	#	%	#	%	accumulative%
0-3m	15m	2	1.70%	15-24m	7	4.3%	0	0	0	9	1.8	1.8
4-6m	3-15m	11	9.2%	15-24m	11	6.6%	3-21m	6	2.7%	28	5.5	7.3
7-9m	6-15m	5	4.2%	6-24m	5	3.0%	9-24m	17	7.6%	28	5.5	12.8
10-12m	15-33m	12	10.0%	6-24m	84	50.9%	15m	74	33.3%	170	33.6	46.4
13-15m	9-21m	48	40.3%	6-24	0	0	6-30m	81	36.5%	128	25.3	71.7
16-18m	-	--	-	3-27m	7	4.2%	15-21m	19	8.6%	26	5.1	76.8
19-21m	6-27m	20	16.8%	3-27m	28	17.0%	15m	5	2.3%	53	10.5	87.3
22-24m	15m	21	17.6%	3-27m	23	13.9%	15m	20	9.0%	64	12.7	100%

Appendix (5): The percentage and the number of housing units meet the suggested orientation.(The researcher,2012)					
Height/street width		**Area A**	**Area B**	**Area C**	**Total**
0.5-1	%	14.2%	32.1%%	10.4%	17.4%
	#	81	48	150	88
More or less than 0.5-1	%	85.8%	67.9%	89.6%	82.6%
	#	38	117	72	418
Total		119	165	222	506

Appendix (6): The orientation of housing buildings in Khallet Aladas.(The researcher,2012)

Orientation	Area A		Area B		Area C		Total	
	%	Accumulative	%		%	Accumulative	%	accumulative%
0-18°	23.5%	23.5%	18.8%	18.8%	38.3%	38.3%	28.5%	28.5%
19-36°	26.1%	49.6%	18.2%	37.0%	19.8%	58.15	20.7%	49.2%
37-54°	10.9%	60.5%	20%	57.0%	22.1%	80.1%	18.8%	68.0%
55-720°	18.5%	79.0%	21.2%	78.2%	10.3%	90.5%	15.8%	83.8%
73-90°	21%	100%	21.8%	100%	9.5%	100%	16.2%	100%

Appendix (7): The percentage and the number of housing units meet the suggested orientation.(The researcher,2012)

Orientation		Area A	Area B	Area C	Total
Meet the optimal orientation	%	49.6%	37.0%	58.2%	49.2%
	#	59	61	129	249
More or less than the suggested standard	%	50.4%	63%	41.8%	97.0%
	#	60	104	93	257
Total	#	119	165	222	506

Appendix (8): Lot areas of housing buildings in Khallet Aladas.(The researcher,2012)																
Lot area	**Area A**			**Area B**			**Area C**			**SH**		**AH**		**RB**		
	SH	**AH**	**RB**	**SH**	**AH**	**RB**	**SH**	**AH**	**RB**	**#**	**%**	**#**	**%**	**#**		**%**
300-556 m²	**13**	**-**	**8**	**1**	**-**	**12**	**8**	**19**	**13**	**22**	**31.4 %**	**19**	**82.6 %**	**33**	**8.0 %**	**14.6 %**
557-600 m²	**0**	**-**	**0**	**0**	**-**	**1**	**5**	**-**	**12**	**5**	**7.15 %**	**-**		**13**	**3.1 %**	**3.6 %**
601-900 m²	**6**	**-**	**12**	**7**	**-**	**63**	**18**	**-**	**90**	**31**	**44.3 %**	**-**		**165**	**39.9 %**	**38.7 %**
901-1200 m²	**1**	**3**	**29**	**10**	**1**	**56**	**-**	**-**	**35**	**11**	**15.7 %**	**4**	**17.4 %**	**120**	**29.1 %**	**26.7 %**
1201-1500 m²	**-**	**-**	**30**	**0**	**-**	**8**	**-**	**-**	**11**	**0**	**0**	**-**		**49**	**11.9 %**	**9.7 %**
1501-1800 m²	**-**	**-**	**4**	**1**	**-**	**3**	**-**	**-**	**7**	**1**	**1.45 %**	**-**		**14**	**3.4 %**	**3.9 %**
1801-2100 m²	**-**	**-**	**8**	**-**	**-**	**2**	**-**	**-**	**3**			**-**		**13**	**3.1 %**	**2.6 %**
Above 2100 m²	**-**	**-**	**5**	**-**	**-**	**-**	**-**	**-**	**1**	**-**		**-**		**6**	**1.5 %**	**1.2 %**

Appendix (9): The percentage and the number of housing units meet the suggested

orientation.(The researcher,2012)

Lot area/ housing unit		Area A	Area B	Area C	Total
<the suggested standard	%	97.5%	83.6%	82.0%	86.2%
	#	116	138	182	436
= the suggested standard	%	-	-	-	-
	#	-	-	-	-
>The suggested standard	%	2.5%	16.4%	18.0%	13.8%
	#	3	27	40	70
Total	#	119	165	222	506

Appendix (10): Housing front setbacks in Khallet Aladas.(The researcher,2012)

Font setbacks	Area A			Area B			Area C		
	#	%	Accumulative	#	%	Accumulative	#	%	Accumulative
0-1m	1	0.8%	0.8%	0	0	0	6	2.7%	2.7%
1.1-2m	3	2.5%	3.3%	1	0.61%	0.61%	1	0.5%	3.2%
2.1-3m	1	0.8	4.1%	2	1.21%	1.82%	8	3.6%	6.8%
3.1-4m	8	6.7%	10.8%	5	3.03%	4.85%	24	10.8%	17.6%
4.1-<4.5m	6	5.0%	15.8%	0	0	4.85%	18	8.1%	25.7%
=4.5	0	0	15.8%	0	0	4.85%	2	0.9%	26.6%
4.6-5	88	74.0%	89.8%	136	82.43%	87.28%	122	55%	81.6%
5.1 - 6	5	4.3%	94.1%	7	4.24%	91.52%	21	9.4%	91%
6.1-7m	4	3.4%	97.5%	6	3.645	95.16%	8	3.6%	94.6%
7.1-8	0	0	97.5%	4	2.42%	97.58%	6	2.7%	97.3%
8.1--9	1	0.8%	98.3%	2	1.21%	98.79%	4	1.8%	99.1%
9.1 and above	2	1.7%	100%	2	1.21%	100%	2	0.9%	100%

Appendix (11): Right setbacks of housing buildings in Khallet Aladas.(The researcher,2012)

Side setbacks	Area A			Area B			Area C		
	#	%	Accumulative %	#	%	Accumulative %	#	%	Accumulative %
0-1m	1	0.8%	0.8%	5	3.0%	3.0%	1	0.5%	0.5%
1.1-2m	7	5.9%	6.7%	2	1.2%	4.2%	6	2.7%	3.2%
2.1-<3m	4	3.4%	10.1%	5	3.0%	7.2%	21	9.4%	12.6%
3m	0	0	10.1%	1	0.6%	7.8%	9	4.0%	16.6%
3.1-4m	90	75.6%	85.7%	131	79.4%	87.1%	140	63.1%	79.7%
4.1-5m	11	9.3%	95%	12	7.3%	94.5%	27	12.2%	91.9%
5.1 – 6	3	2.5%	97.5%	2	1.2%	95.7%	8	3.6%	95.5%
Above 6	3	2.5%	100%	7	4.3%	100%	10	4.5%	100%

Appendix (12): Left side setbacks of housing buildings in Khallet Aladas.(The researcher,2012)

Left setbacks	Area A			Area B			Area C		
	#	%	Accumulative %	#	%	Accumulative %	#	%	Accu-mulative %
0-1m	5	4.2%	4.2%	5	3.03%	3.03%	2	0.9%	0.9%
1.1-2m	0	0%	4.2%	2	1.21%	4.24%	7	3.1%	4.0%
2.1-<3m	3	2.5%	6.7%	6	3.64%	7.88%	10	4.5%	8.5%
3m	2	1.7%	8.4%	139	84.24%	92.12%	4	1.8%	10.3%
3.1-4m	11	9.2%	17.6%	4	2.42%	94.54%	150	67.6%	77.9%
4.1-5m	8	69.8	87.4%	4	2.42%	96.96%	31	14.0	91.9%

	3	%						%	
5.1 – 6	11	9.2%	96.6%	4	2.42%	99.38%	8	3.6%	95.5%
Above 6	4	3.4%	100%	1	0.62%	100%	10	4.5%	100%

Appendix(13): Rear setbacks of housing buildings in Khallet Aladas.(The researcher,2012)

Street width	**Number and percentage of housing unit in area A**			**Number and percentage of housing unit in area B**			**Number and percentage of housing unit in area C**		
	#	**%**	**Accumulative %**	**#**	**%**	**Accumulative %**	**#**	**%**	**Accumulative %**
0-1m	-	-	-	-	-	-	6	2.7%	2.7%
1.1-2m	3	2.5%	2.5%	2	1.21%	1.2%	4	1.8%	4.5%
2.1-3m	7	5.9%	8.4%	5	3.03%	4.24%	10	4.5%	7.6 %
3.1-4m	8	6.7%	15.1%	135	81.82 %	86.06%	29	13.1 %	22.1%
4.1-<5m	2	1.7%	16.8%	6	3.64%	89.7%	154	69.3 %	91.4%
5m	87	73.1 %	89.9%	5	3.03%	92.73%	19	8.6%	100%
5.1 – 6	-	-	-	7	4.24%	96.97%	-	-	-
Above 6	12	10.1 %	100%	5	3.03%	100%	-	-	-

Appendix(14): The percentage and the number of housing buildings above, below and equal to the suggested parking score.(The researcher,2012)

Parking	% of housing buildings	# of housing buildings
Meet required parking numbers (score=1)	17.2%	87
Above (score>1)	6.1%	31

Below (score<1)	76.7%	388

Appendix(15): The percentage and the number of housing units with entrances scores.(The researcher,2012)		
Roads	% of housing buildings	# of housing buildings
Asphalt with sidewalks	87.4%	442
Asphalt without sidewalks	8.7%	44
No asphalt	3.9%	20

Appendix (16): The analysis of Kindergarten in Khallet Aladas in 2013, 2025. (The researcher, 2012)			
Analysis of Kindergarten		2013	2025
Population		30,286	41,696
Population in study area		4,518	12,619
Children(0-5years) must be serviced (12.4% of total population in study area)		561	1566
Analysis level (Macro level/ Micro level)		**Micro level**	
Facility Capacity(Supply)		0.029Ha	0.029Ha
Facility of Area (Demand)		1.17Ha	3.3Ha
Deficiency /surplus in facilities areas		-1.14 Ha	-3.2Ha
% of housing units access to the facility	Excellent (500m)	53.7%	53%
	Good(750)	46.3%	46.3%
	Bad (> 750)	-	0.7%

Appendix (17): The analysis of elementary schools in Khallet Aladas in 2013, 2025. (The

researcher, 2012)			
Analysis of elementary school		2013	2025
Population		30,286	41,696
Population in study area		4,518	12,619
Household size		4.6	3.86
The children(6years-15years) (21% of total population in Ramallah)		6355	8756
Analysis level (Macro level/ Micro level)		**Macro level**	
Facility Capacity(Supply)		6.94Ha	6.94Ha
Facility of Area (Demand)		7.6 Ha	10.5 Ha
Deficiency /surplus in facilities areas		-0.69Ha	-3.56 Ha
% of housing units access to the facility	Excellent (1000m)	8.6%	18.8%
	Good(1500)	45.0%	52.1%
	Bad (> 1500)	46.4%	29.1%

Appendix (18): The analysis of secondary schools in Khallet Aladas in 2013, 2025. (The researcher, 2012)					
Analysis of secondary school		2013		2025	
Population		30,286		41,696	
Population in study area		4,518		12,619	
The children(15years-18years) (9.3% of total population in Ramallah)		2817		3878	
Analysis level (Macro level/ Micro level)		**Macro level**			
Facility Capacity(Supply)		19.11Ha		19.11Ha	
Facility of Area (Demand)		7.0Ha		9.7Ha	
Deficiency /surplus in facilities areas		+12.11Ha		+9.41Ha	
		Girls’	Boys’	Girls’	Boys’
% of housing units access to the facility	Excellent (1500m)	33.2%	56.3%	48.3%	40.4%
	Good(2250)	66.8%	43.7%	51.4%	59.6%
	Bad (>2250)	-	-	0.3%	-

Appendix (19): Health centers in Ramallah, 2012. (Palestinian Health Ministry in Ramallah, 2012)			
Name of health centers	**Sector**	**Type**	**Th(beds)**
▪ Palestine Medical Complex	Governmental	General	170 beds
• Ramallah's Sons Ward			104 beds
• Pediatric Ward			41 beds
• Heart and Specialized Surgeries Ward			25 beds
▪ Arab Care Medical Services	Private	General	36 beds
▪ Abu Raya	NGO	Rehabilitation	27 beds
▪ Walid El Nather	Private	Maternity	10 beds
Total supply (number of beds) in 2012			243 beds

Appendix (20): The analysis of clinics in Khallet Aladas. (The researcher, 2012)			
Analysis of clinics		**2013**	**2025**
Population		30,286	41,696
Population in study area		4,518	12,619
Analysis level (Macro level/ Micro level)		**Macro level**	
Facility Capacity(Supply)		0.13Ha	0.13Ha
The area of required facility (Demand)		0.36 Ha	0.5Ha
Deficiency /surplus in facilities areas		-0.23Ha	-0.37Ha
	Bad (>1500)	100%	100%

Appendix (21): The analysis of hospitals in Khallet Aladas. (The researcher, 2012)			
Analysis of Health facilities		2013	2025
Population		30,286	41,696
Population in study area		4,518	12,619
Analysis level (Macro level/ Micro level)		**Macro level**	
# of beds (Supply)		243	243
# of beds (demand)		212beds	292beds
Deficiency /surplus in hospital beds		31 beds	49 beds
% of housing units access to the facility	Excellent (1500m)	10.9%	19.5%
	Good(2250)	56.7%	55.0%
	Bad (>2250)	32.4%	25.5%

Appendix (22): The analysis of daily shops in Khallet Aladas. (the researcher, 2012)			
Analysis of daily shops		2013	2025
		2013	2025
Population		30,286	41,696
Population in study area		4,518	12,619
Analysis level (Macro level/ Micro level)		Micro level	
Facility Capacity(Supply)		0.028Ha	0.028Ha
Facility of Area (Demand)		0.02Ha	0.057Ha
Deficiency /surplus in facilities areas		+ 0.008Ha	0.029Ha
% of housing units access to the facility	Excellent (500m)	95.6%	98.2%
	Good(750)	4.4%	1.8%

	Bad (> 750)	-	-

Appendix (23): The analysis of weekly shops in Khallet Aladas. (the researcher, 2012)			
Analysis of weekly shops		2013	2025
Population		30,286	41,696
Population in study area		4,518	12,619
Analysis level (Macro level/ Micro level)		Micro level	
Facility Capacity(Supply)		0.11Ha	10.7Ha
Facility of Area (Demand)		0.23Ha	0.52Ha
Deficiency /surplus in facilities areas		-0.12Ha	+10.17Ha
% of housing units access to the facility	Excellent (1000m)	100%	100%
	Good(1500)	-	--
	Bad (> 12550)	-	-

Appendix (24): Analysis of religious buildings in Khallet Aladas. (The researcher,2012)				
Analysis of religious buildings	2013		2025	
Population	30,286		41,696	
Population in the study area	4,518		12,619	
Level of analysis(micro level/macro level)	Micro level			
	Mosques	Churches	Mosques	Churches
Facility capacity(Supply)	0.146Ha	0	0.146Ha	0
Facility capacity(demand)	0.058Ha	0.058Ha	0.16Ha	0.16Ha

Deficiency/surplus in a facility area		+0.088Ha	-0.058Ha	-0.0.018Ha	-0.016Ha
% of housing units access to the housing units	Excellent 800m	89.4%	-	78.2%	-
	Good 1600m	10.6%	-	21.8%	-
	Bad>1600m	-	100%	-	100%

Appendix (25): Analysis of cafes in Khallet Aladas. (The researcher,2012)			
Analysis of cafes		2013	2025
Population		30,286	41,696
Population in the study area		4,518	12,619
Level of analysis(micro level/macro level)		Micro level	
Facility capacity(Supply)		0.093Ha	0.093Ha
Facility capacity(demand)		0.14Ha	0.38Ha
Deficiency/surplus in a facility area		0.047Ha	0.29Ha
% of housing units access to the housing units	Excellent800m	100%	97.6%
	Good1200m	-	2.4%
	Bad>1200m	-	-

Appendix (26): Analysis of library in Khallet Aladas.(The researcher,2012)		
Analysis of Library	2013	2025
Population	30,286	41,696
Population in the study area	4,518	12,619
Level of analysis(micro level/macro level)	Macro level	

Facility capacity(Supply)		0.027Ha	0.027Ha
Facility capacity(demand)		0.15Ha	0.21Ha
Deficiency/surplus in a facility area		0.12Ha	0.18Ha
% of housing units access to the housing units	Excellent	0.70%	3.7%
	Good	34.6%	48.6%
	Bad	64.7%	47.7%

Appendix (27): Analysis of police station and post office.(The researcher,2012)

Analysis of police station and post office		2013		2025	
Population		30,286		41,696	
Population in the study area		4,518		12,619	
Level of analysis (macro level)		Police station	Post office	Police station	Post office
		2013	2013	2025	2025
Facility capacity(Supply)		0.87Ha	0.04Ha	0.87Ha	0.04Ha
Facility capacity(demand)		0.61Ha	0.03Ha	0.83Ha	0.42Ha
Deficiency/surplus in a facility area		+0.26Ha	+0.01Ha	0.04Ha	-0.38Ha
% of housing units access to the housing units	Excellent	100%	8.2%	100%	24.4%
	Good	-	56.0%	-	57.6%
	Bad	-	35.8%	-	19.0%

Appendix (28): Analysis of public transportation stations in Khallet Aladas.(The researcher,2012)			
Analysis of public transportation stations		2013	2025
Population		30,286	41,696
Population in the study area		4,518	12,619
Household size		4.6	3.9
Level of analysis(micro level/macro level)		2013	2025
% of housing units access to the housing units(500m)	Excellent(500m)	91.8%	78.9%
	Good (750m)	8.20%	21.1%
	Bad(>750m)	-	-

Appendix (29): Green open spaces in Ramallah.(Ramallah municipality,2012)		
	Park name	Park area(Ha)
1.	Qaddoura Garden	0.35
2.	Omam garden	0.25
3.	Daraj Khallet Aladas	0.07
4.	Al-Qaser garden	0.07
5.	San Fernando	0.055
6.	Albayyara gardem	0.11
7.	The Family garden	0.12
8.	Olive garden	0.05
9.	Alajlouni garden	0.05

10.	Alkhoulod garden	0.05
11.	Albarwa park	1.0
12.		
13.	Ein Mezrab garden	0.025
14.	Sho'ab Sommaqa	0.30
15.	Radana garden	0.7
16.	Ramallah municipality park	0.32

Appendix (30): Analysis of open spaces in Khallet Aladas.(The researcher,2012)

Analysis of open spaces		2013		2025	
Population		30,286		41,696	
Population in the study area		4,518		12,619	
Level of analysis (macro level)		Neighborhood Park	City Park	Neighborhood Park	City Park
		2013	2013	2025	2025
Facility capacity(Supply)		0.05Ha	3.80Ha	0.05Ha	8.12 Ha
Facility capacity(demand)		4.5Ha	15.14Ha	12.62Ha	20.8Ha
Deficiency/surplus in a facility area		-4.45Ha	-11.34Ha	-12.57Ha	-12.7Ha
% of housing units access to the housing units	Excellent	99.1%	23.2%	96.4%	36.3%
	Good	0.9%	76.8%	3.6	63.7%

Appendix (31): Housing buildings that meet the suggested standard.(the researcher,2013)

Area B				
Housing type	**Total**	**# of meet the suggested score**	**%**	**Total**
SH	89	5	5.6%	0.83%

AH	48	14	2.9%	2.3%
RB	464	59	12.7%	9.8%
	601	78	13.0%	-

Appendix (32): Width of access road in Almakhfia.(The researcher,2012)

Street width	Housing height	# of housing units	% of housing units	Accumulative
0-3m	3-21m	54	9.0%	9.0%
4-6m	6-30m	34	5.7%	14.7%
7-9m	3-21m	15	2.5%	17.2%
10-12m	3-39m	478	79.5%	96.7%
13-15m	6-27m	19	3.1%	99.8%
16-19m	6m	1	0.2%	100%

Appendix (33): The orientation of housing buildings in Almakhfia.(the researcher,2012)

Orientation	Area B		
	#	%	Accumulative
0-18°	78	13.0%	13.0%
19-36°	183	30.4%	43.4%
37-54°	70	11.6%	55%
55-720°	181	30.1%	85.1%
73-<90°	84	14.0%	99.1%
90°	5	0.9%	100%

Appendix(34): Lot areas of housing building in Almakhfia.(The researcher,2012).						
Lot Area	**SH**		**AH**		**RB**	
	#	**%**	**#**	**%**	**#**	**%**
300-556m^2	47	52.8%	23	47.9%	207	44.6%
557-600 m^2	4	4.5%	1	2.1%	32	6.9%
601-900 m^2	32	36.0%	23	47.9%	190	40.9%
901-1200 m^2	4	4.5%	1	2.1%	27	5.8%
1201-1500 m^2	1	1.1%	-	-	8	1.8%
1501-1800 m^2	1	1.1%	-	-	-	-

Appendix (35: Housing front setbacks in Almakhfia.(The researcher,2012)			
Front setbacks	**Number and percentage of housing unit in area A**		
	#	**%**	**Accumulative%**
0-1m	53	8.8%	8.8%
1.1-2m	48	8.0%	16.8%
2.1-3m	63	10.4%	27.2%
3.1-4m	378	62.9%	90.1%
4.1-<4.5m	10	1.7%	91.8%
=4.5	8	1.3%	93.1%
4.6-5	19	3.2%	96.3%
5.1 - 6	16	2.7%	99.0%
6.1-7m	4	0.7%	99.7%
7.1-8	0	0	99.7%
8.1--9	2	0.3%	100%

Appendix(36): Housing right setbacks in Almakhfia.(The researcher,2012)			
Right setbacks	**Area B**		
	#	**%**	**Accumulative %**
0-1m	51	8.5%	8.5%
1.1-2m	77	12.8%	21.3%
2.1-3m	397	66.4%	87.7%
3.1-4m	45	7.5%	95.2%
4.1-<4.5m	21	3.5%	98.7%
=4.5	5	0.8%	99.5%
4.6-5	3	0.5%	100%

Appendix(37): Housing left setbacks in Almakhfia.(The researcher,2012)			
Left setbacks	**Area B**		
	#	**%**	**Accumulative %**
0-1m	36	6.0%	6.0%
1.1-2m	50	8.3%	14.3%
2.1-3m	415	69.1%	83.4%
3.1-4m	64	10.6%	94.0%
4.1—5m	24	4.0%	98.0%
5.1-6	6	1.0%	99.0%
6.1-7	5	0.80%	99.8%
7.1-8	1	0.20%	100%

Appendix(38): Housing left setbacks in Almakhfia.(The researcher,2012)			
Rear setbacks	**Area B**		
	#	**%**	**Accumulative %**
0-1m	33	5.5%	5.5%
1.1-2m	41	6.8%	12.3%
2.1-3m	70	11.6%	23.9%
3.1-4m	74	12.3%	36.2%
4.1-5m	377	56.0%	92.2%
5.1-6m	2	0.3%	99.3%
6.1-7m	1	0.2%	99.5%
7.1-8m	-	-	-
8.1-9m	1	0.2%	99.7%
9.1-10m	2	0.3%	100%

Appendix(39): The percentage of housing buildings above, below and equal to the suggested parking score.(The researcher,2012)		
Parking	**% of housing buildings**	**# of housing buildings**
Meet required parking numbers	0.30%	2
Above	43.3%	260
Below	56.4%	339

Appendix(40): The percentage and the number of housing units with entrances scores.(The researcher,2012)		
Roads conditions	% of housing buildings	# of housing buildings

Asphalt with sidewalks	15.1%	91
Asphalt without sidewalks	13.3%	80
No asphalt	71.6%	430

Appendix (41): The analysis of Kindergarten in Almakhfia in 2013, 2025. (The researcher, 2012)

Analysis of Kindergarten		2013	2025
Population		143,210	190,359
Population in study area		5875	17,164
Household size		4.8	4.6
Children(0-5years) must be serviced (12.8% of total population in study area)		752	2196
Analysis level (Macro level/ Micro level)		**Micro level**	
Facility Capacity(Supply)		0.03Ha	0.03Ha
Facility of Area (Demand)		1.57Ha	4.58Ha
Deficiency /surplus in facilities areas		-1.54Ha	-4.55Ha
% of housing units access to the facility	Excellent (500m)	80.8%	84.5%
	Good(750)	96.9%	13.2%
	Bad (> 750)	3.10%	2.3%

Appendix(42): The analysis of elementary schools in Almakhfia in 2013, 2025. (The researcher, 2012)

Analysis of elementary school	2013	2025
Population	143,210	190,359
The children(6years-15years) (24.7% of total population in Ramallah)	35,372	47,019
Analysis level (Macro level/ Micro level)	**Macro level**	

Facility Capacity(Supply)		13.6Ha		13.6Ha	
Facility of Area (Demand)		42.6Ha		56.4Ha	
Deficiency /surplus in facilities areas		-29Ha		-42.8Ha	
		Girls'2013	Boys'2013	Girls'2025	Boys'2025
% of housing units access to the facility	Excellent (1000m)	72.7%	100%	77.8%	100%
	Good(1500)	24.2%	-	19.8%	-
	Bad (> 1500)	3.1%	-	2.4%	-

Appendix (43): The analysis of secondary schools in Alm,akhfia in 2013, 2025. (The researcher, 2012)

Analysis of secondary school		2013		2025	
Population		143,210		190,359	
The children(15years-18years) (10.7% of total population in Nablus)		15,323		20,368	
Analysis level (Macro level/ Micro level)		**Macro level**			
Facility Capacity(Supply)		6.7Ha		6.7Ha	
Facility of Area (Demand)		38.3Ha		50.9Ha	
Deficiency /surplus in facilities areas		-31.6Ha		-44.2Ha	
		Girls'	Boys'	Girls'	Boys'
% of housing units access to the facility	Excellent (1500m)	100%	100%	100%	100%
	Good(2250)	-	-	-	-
	Bad (>2250)	-	-	-	-

Appendix(44): Health centers in Nablus, 2012. (Palestinian Health Ministry in Ramallah, 2012)

Health centers	**Sector**	**Type**	**(beds)**
▪ Rafidia	Governmental	General	213

▪ Alwatani	Governmental	General	55
▪ Al Itihad	NGO	General	63
▪ Ev. Mission (Al Injeli)	NGO	General	48
▪ Specialized Arab Hospital	Private	-	55
▪ Nablus Specialized Hospital	Private	Special	55
▪ Eyes' hospital	NGO	Special	110
▪ Cancer Hospital	NGO	Special	55
Total capacity			654 beds

Appendix (45): The analysis of clinics in Almakhfia in 2013, 2025. (The researcher, 2012)

Analysis of clinics		**2013**	**2025**
Population		143,210	190,359
Population in study area		5875	17,164
(100% of total population in Ramallah)		15,323	20,368
Analysis level (Macro level/ Micro level)		**Macro level**	
Facility Capacity(Supply)		0.079Ha	0.079Ha
The area of required facility (Demand)		1.7Ha	2.3Ha
Deficiency /surplus in facilities areas		-1.62Ha	-2.22Ha
% of housing units access to the facility	Excellent(1000m)	97.0%	96.0%
	Good(1500m)	3.0%	4.0%
	Bad (>1500)	-	-

Appendix(46): The analysis of hospitals in Almakhfia in 2013, 2025. (The researcher, 2012)

Analysis of Health facilities		2013	2025
Population		143,210	190,359
Population in study area		5875	17,164
Analysis level (Macro level/ Micro level)		**Macro level**	
# of beds (Supply)		654	654
# of beds (demand)		1002	1332
Deficiency /surplus in hospital beds		-348	-678
% of housing units access to the facility	Excellent (1500m)	98.6%	96.4%
	Good(2250)	1.4%	3.6%
	Bad (>2250)	-	-

Appendix (47): The analysis of daily shops in Almakhfia in 2013, 2025. (the researcher, 2012)

Analysis of daily shops		2013	2025
Population		143,210	190,359
Population in study area		5875	17,164
Analysis level (Macro level/ Micro level)		**Micro level**	
Facility Capacity(Supply)		0.021Ha	0.021Ha
Facility of Area (Demand)		0.026Ha	0.078
Deficiency /surplus in facilities areas		0.005Ha	-0.057Ha
% of housing units access to the facility	Excellent (500m)	100%	100%
	Good(750)	-	-
	Bad (> 750)	-	-

Appendix (48): Analysis of religious buildings in Almakhfia . (The researcher,2012)					
Analysis of religious buildings		2013		2025	
Population		143,210		190,359	
Population in the study area		5875		17,164	
Level of analysis(micro level/macro level)		**Micro level**			
		Mosques	Churches	Mosques	Churches
Facility capacity(Supply)		0.12Ha	-	0.12Ha	-
Facility capacity(demand)		0.076Ha	0.076Ha	0.22Ha	0.22Ha
Deficiency/surplus in a facility area		+0.044Ha		-0.01Ha	
% of housing units access to the housing units	Excellent 800m	100%		100%	
	Good 1600m	-		-	
	Bad>1600m	-		-	

Appendix (49): Analysis of cafes in Almakhfia. (The researcher,2012)		
Analysis of Cafes	2013	2025
	2013	2025
Population	143,210	190,359
Population in the study area	5875	17,164
Level of analysis(micro level/macro level)	Micro level	
Facility capacity(Supply)	0.13Ha	0.13Ha
Facility capacity(demand)	0.18Ha	0.51Ha
Deficiency/surplus in a facility area	-0.05Ha	-0.38Ha

% of housing units access to the housing units	Excellent 800m	100%	100%
	Good 1200m	-	-
	Bad >1200m	-	-

Appendix(50): Analysis of library in Almakhfia.(The researcher,2012)

Analysis of Library		2013		2025	
Population		143,210		190,359	
Population in the study area		5875		17,164	
Libraries (100% of population)		143,210		190,359	
Youth center(56% of the total population)		80,197		108,281	
Level of analysis(micro level/macro level)		Macro level			
		Libraries	Youth center	libraries	Youth center
Facility capacity(Supply)		0.8Ha	0.07	0.8Ha	0.07
Facility capacity(demand)		7.1Ha	4.0 Ha	9.5Ha	5.3Ha
Deficiency/surplus in a facility area		-6.3Ha	-3.93Ha	-8.7Ha	-4.23Ha
% of housing units access to the housing units	Excellent (1500m)	4.9%	-	3.8%	-
	Good(2250m)	52.1%	-	50.6%	-
	Bad(>2250)	43.0%	-	45.6%	-

Appendix(52): Analysis of police station and post office in Almakhfia.(The researcher,2012)

Analysis of police station and post office	2013			2025		
Population	143,210			190,359		
Population in the study area	5875			17,164		
Level of analysis (macro level)	Police station	Post office	Fire station	Police station	Post office	Fire station

		2013	2013		2025	2025	
Facility capacity(Supply)		0.87Ha	0.04Ha	0.18Ha	0.87Ha	0.04Ha	0.18Ha
Facility capacity(demand)		0.61Ha	0.03Ha	0.72Ha	0.83Ha	0.42Ha	0.95Ha
Deficiency/surplus in a facility area		+0.26Ha	+0.01Ha	-0.54Ha	0.04Ha	-0.38Ha	-0.77Ha
% of housing units access to the housing units	Excellent	-	0%	-	-	-	-
	Good	5.0%	62.9%	-	4.1%	62.2%	-
	Bad	95.0%	37.1%	-	95.9&	37.8%	-

Appendix(52): Analysis of public transportation stations in Almakhfia.(The researcher,2012)

Analysis of public transportation stations		2013	2025
		2013	2025
Population		143,210	190,359
Population in the study area		5875	17,164
Household size		4.8	4.6
Level of analysis(micro level)		2013	2025
% of housing units access to the housing units(500m)	Excellent(500m)	24.5%	21.5%
	Good (750m)	20.9%	19.6%
	Bad(>750m)	54.3%	58.9%

Appendix(53): Green open spaces in Nablus city.(Nablus municipality,2012)

Park name	Park area(Ha)
1. Almakhfia Garden	0.09

2. Sama Nablus	23.0
3. Jamal Abdel Naser park	7.2
4. Danish garden	6.0
5. Alhoosh park	2.1
6. Faisal king garden	1.3
7. Alfainaq park	0.43
8. Yaser Arafat park	0.11
9. Public housing garden in eastern part of city	1.4
10. Municipality playground	1.7
Total	43.33

Appendix (54): Analysis of open spaces in Almakhfia.(The researcher,2012)

Analysis of open spaces		2013		2025	
Population		143,210		190,359	
Population in the study area		5875		17,164	
Level of analysis (macro level)		Neighborhood Park 2013	City Park 2013	Neighborhood Park2025	City Park2025
Facility capacity(Supply)		0.05Ha	43.33Ha	0.05Ha	58.1Ha
Facility capacity(demand)		5.9Ha	71.60Ha	17.16Ha	95..2Ha
Deficiency/surplus in a facility area		-5.85Ha	-28.3Ha	-17.11Ha	-37.1Ha
% of housing units access to the housing units	Excellent	90.1%	21.4%	91.1%	18.6%
	Good	9.9%	78.5%	8.9%	80.4%
	Bad		0.1%		

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